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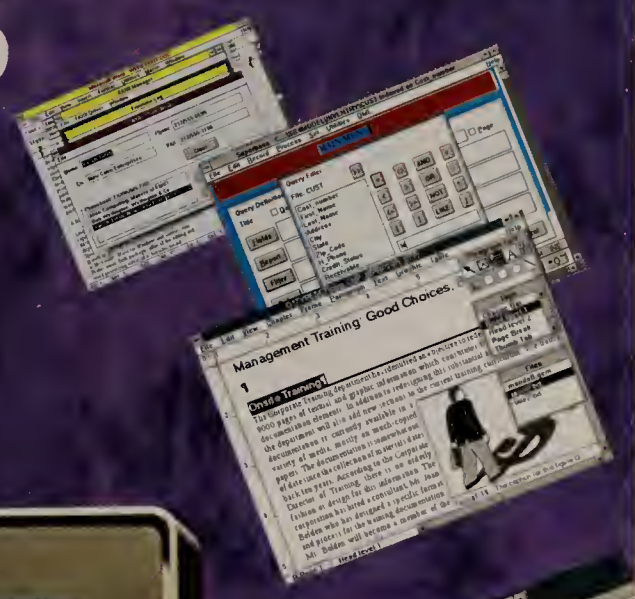

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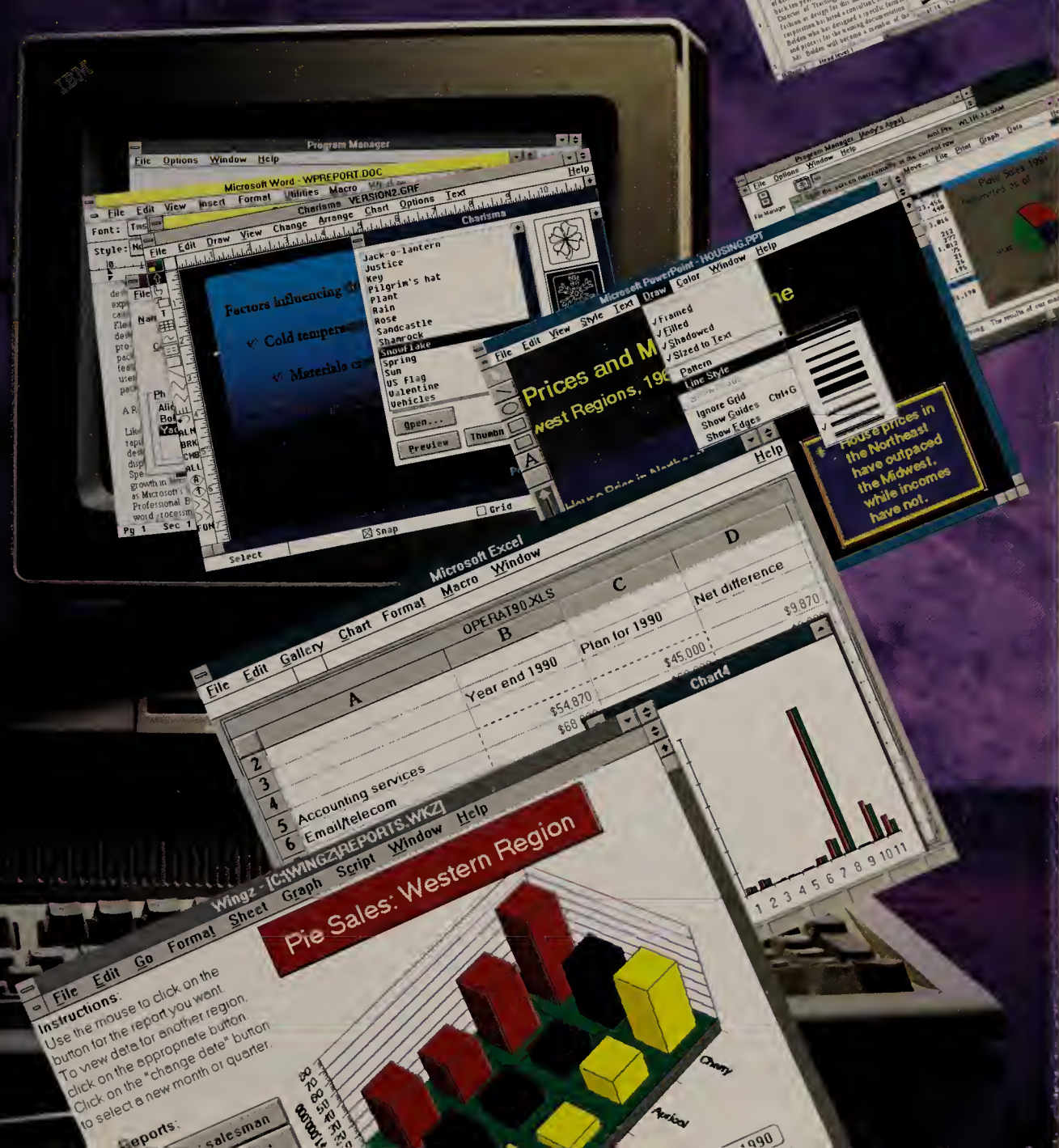

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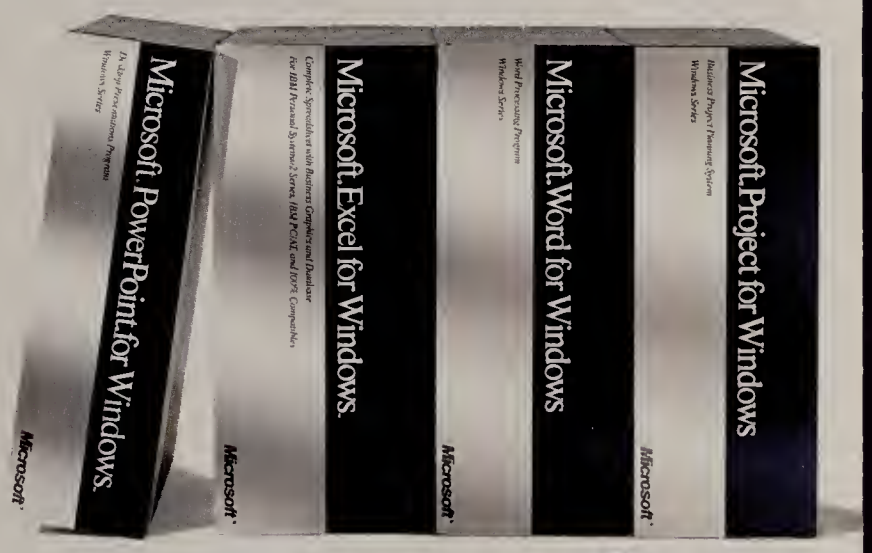

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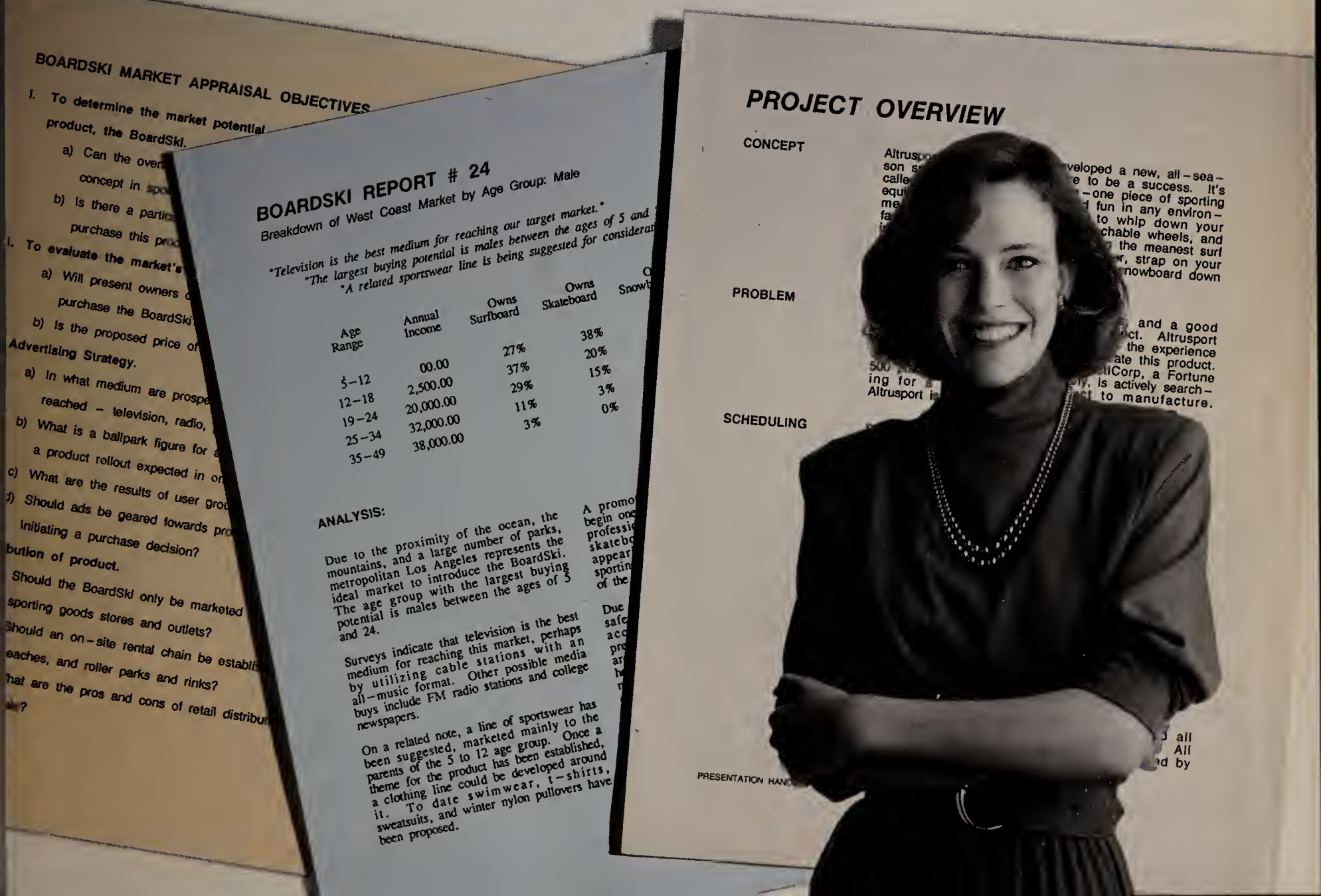

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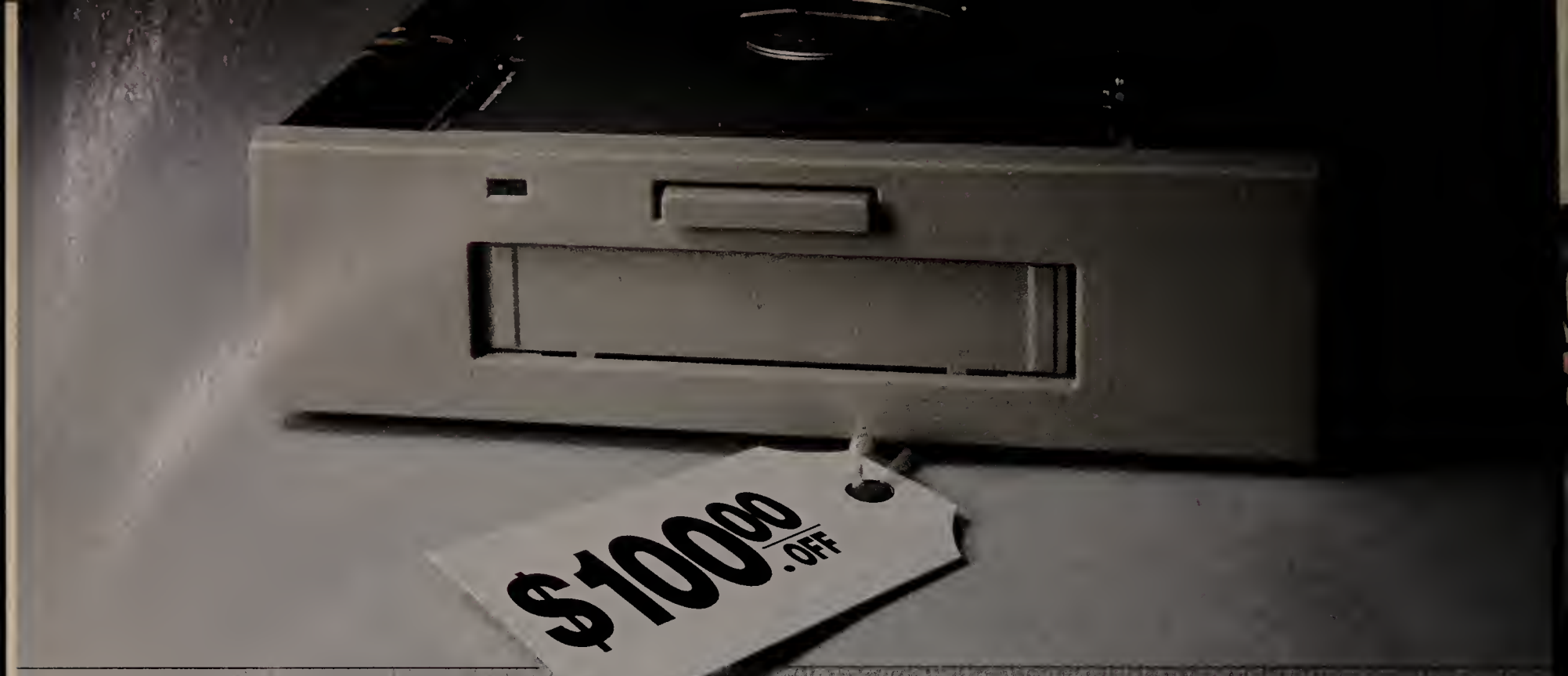

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Circle 120 on reader service card

Arnold ensures Mark meets his deadline.

JONATHAN LEVINE

The Ultimate Motivator

Mark Marek has a rough job. Month after month, under the watchful eye of Arnold Harris, he turns out *Two-Fisted Management.* Fans of *PC World*'s wryly subversive comic strip know what happens when an employee fails to meet Harris's rigorous standards: a pink slip, a right to the jaw, a one-way ticket to the mailroom.

With a squiggly drawing style and an eye for office burlesque, Marek has been evoking the burly, irascible Harris in the pages of *PC World* for over two and a half years. "Everybody has a bone to pick with the boss," says Marek. "Arnold Harris is a combination of all the bones people want to pick."

Has Marek ever worked for someone like Harris? "Well, there was one militaristic guy I worked for that was a little bit like him," says Marek. "His father was an army sergeant." But Marek denies that Harris is based on any one person; he's more like an unstoppable force. "If Harris discovered that his company owned a polluted marsh, he'd quickly turn it into a profit-producing polluted marsh."

Still, Harris is not an evil character, according to Marek. "I have an affinity for the guy. I like his aggressive energy. I think of him as a character that's tough to swallow, but necessary to make the world work." That sounds like a description Harris himself would applaud. The cartoonist elaborates: "When he was a child, his parents didn't tell him to share his toys—they told him to lease them."

Marek's other credits include work for *Spy* magazine and *National Lampoon,* along with MTV logo animations and a Cindy Lauper video. The New Jersey–based cartoonist also does computer graphics for FNN, a financial cable news network, and teaches graphic arts at Parsons School of Design in New York City. He admits to no management experience other than a brief stint as head dishwasher shortly after arriving in New York 12 years ago.

Marek claims that he has little trouble coming up with ideas for *Two-Fisted Management.* His experience in office situations has provided abundant material, enabling him to just start drawing and let the latest escapade quickly unfold. Of course, if Harris were looking over your shoulder, *you'd* probably get your work done pretty fast too.

Speaking of people in a hurry, this month's issue will have special appeal for those who need to crank out crowd-pleasing charts and graphs posthaste. Our roundup of eight business graphics packages spotlights the quick-presentation talents of Micrografx's *Charisma* and *Microsoft PowerPoint;* the latter receives a Best Buy.

These two leading packages happen to run under *Windows 3.0*—and as this month's Windows Special Report reveals, they're not alone. A gala Buyers' Guide therein gives you the look and feel of no fewer than 39 *Windows 3.0*–compatible applications.

Finally, our roundup of small business accounting packages targets readers switching from manual to PC accounting. Two packages score Best Buys: *BusinessWorks* and *Pacioli 2000.*

And if you're still reading, you probably don't have enough to do. As Arnold Harris would say, "You're outta here!"

Eric Knorr
Executive Editor

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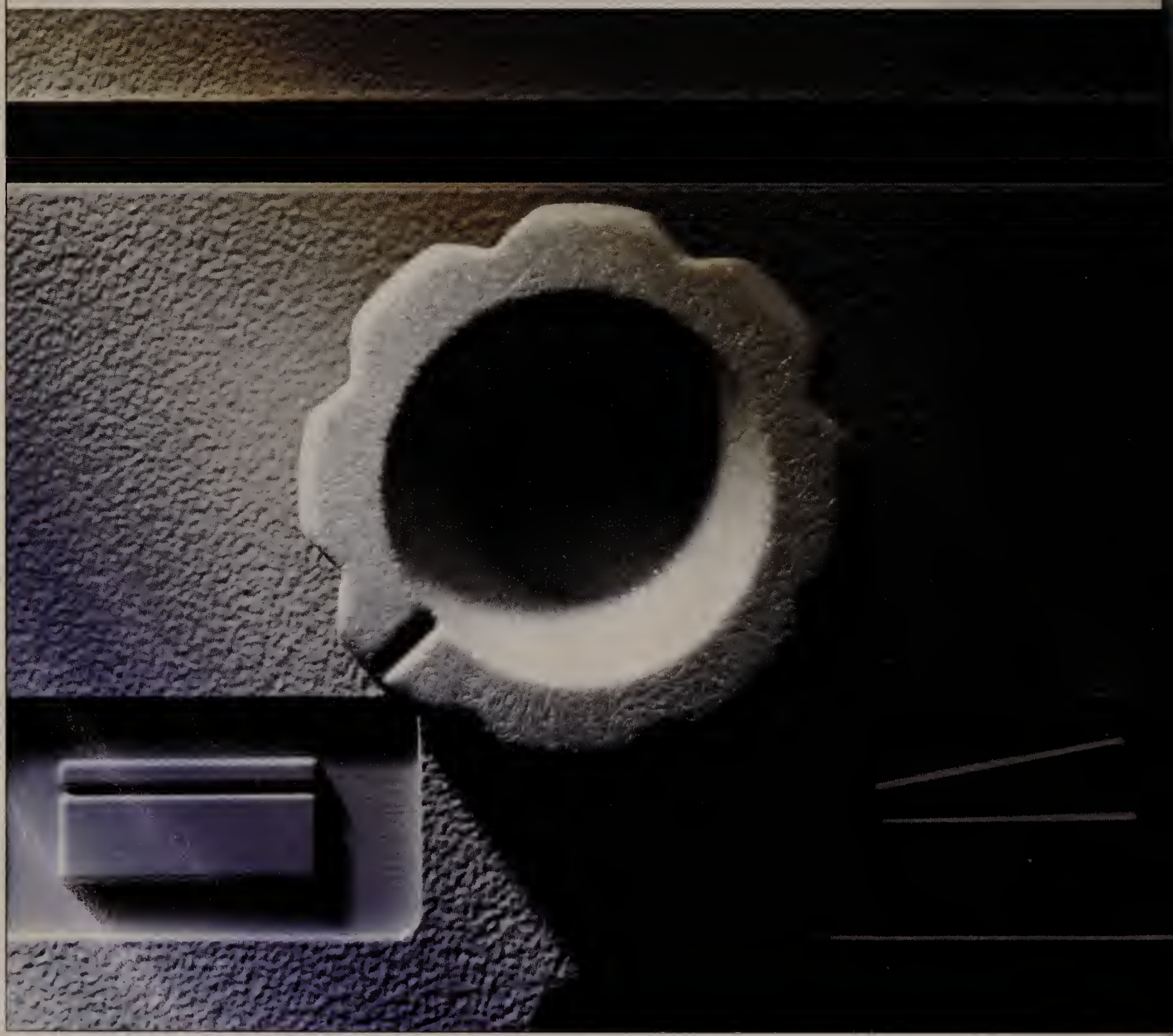

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PC MAGAZINE EDITORS' CHOICE May 29, 1990 LANtastic

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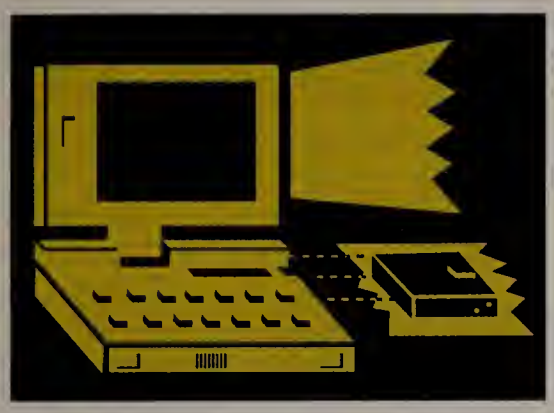
EPSON IS ON FIRST

SX Notebook Signals Start of Something Big



Epson America is leading off what promises to be a limit-shattering round of portable PC introductions this fall with a battery-powered notebook based on a 16-MHz 386SX processor. While several vendors are preparing still more powerful models for COMDEX Fall, the VGA-equipped NB3 casts Epson at least temporarily as the leader in notebook technology.

Weighing only 5.8 pounds and measuring 8.5 by 11.7 by 1.7 inches, the NB3 fits easily in a briefcase—with room to spare. It has a no-compromise feature set that includes a 3½-inch floppy drive and either a 20MB or 40MB removable hard drive, providing virtually unlimited file storage. An optional docking station offers another 120MB of storage, two full-sized AT slots, and an external 101-key keyboard; it snaps onto the notebook to form a portable package that's only 9.5 pounds.

With 1MB of RAM expandable to 5MB, the NB3 can easily run *Windows*—with the clarity of a desktop monitor, thanks to a black-on-white, backlit LCD offering 640 by 480 resolution with 16 shades of gray. A removable nickel-cadmium battery is good for 2 to 3 hours of uninterrupted computing, and its 2-hour recharge is less than half the time most batteries need. Prices aren't set for the NB3 or its docking station, which are to ship by December.

The NB3 will be one of several entries trying to upend Compaq's hugely popular 8086-based LTE and 286-based LTE/286. More than 75,000 Compaq units were sold through computer dealers between January and July, according to Storeboard/Computer Intelligence—several times the number of all other notebooks combined. The category will grow by an astounding 90 percent between this year and next, predicts International Data Corporation analyst Bruce Stephen, compared to 6.5 percent growth for all types of PCs. Although the NB3 "will be in the pack" by the time it ships, announcing early gives Epson a better competitive position than it previously enjoyed, he adds.

IBM, MICROSOFT "REALIGN"

New Agreement Glosses Over Schism

IBM and Microsoft reaffirmed their marriage vows and realigned development responsibilities for DOS, *Windows*, and OS/2 in mid-September. But industry observers feel that the public pronouncement hides a growing schism that could further complicate the already slow migration from DOS to OS/2.

While the pair will cooperate on design goals for these products, IBM will now be responsible for sole development of 16-bit and 32-bit versions of OS/2—or versions 1.3 and 2.0, respectively. Microsoft will focus on *Windows*, an OS/2 that is portable to RISC processors, and future DOS versions, including 5.0. Previously, teams from both companies programmed different portions of many products.

Ostensibly, the goal of "single site" development is efficiency, but observers say that the realignment amounts to a trial separation. "That couldn't be farther from the truth," counters Ned Lautenbach, IBM director of OS/2 marketing. "The relationship is stronger than ever."

But observers insist a rift is growing out of the success of *Windows 3.0*, which could ship 2 million units this year and further slow OS/2 sales. IBM wants Microsoft to do more to promote the adoption of OS/2, while Microsoft votes for a gradual migration to OS/2 through *Windows*, says one *Windows*/OS/2 developer. "IBM wants OS/2 sooner rather than later because it is SAA compatible and will help sell more big iron [mainframes], where IBM makes all its money," adds another developer.

IBM has agreed to license the functions of its OS/2 Extended Edition to Microsoft OEMs and has endorsed *Windows* for users with up to 4MB of memory (territory formerly reserved for OS/2). In return, Microsoft will sell a version of OS/2 1.3, Big Blue's *Windows* alternative.

NEW LAPTOP CHIP DEBUTS

386SL Brings SX Power to Notebooks

A new chip from Intel combines the 32-bit processing power of the 386SX with enhancements specifically designed for portables. Targeted at the fast-moving notebook market, the 386SL will yield smaller and more capable battery-powered PCs.

While several system makers have managed to fit the 386SX into upcoming notebooks, the 20-MHz 386SL includes a power management facility, says Product Marketing Manager Jim Chapman. Programmers can fine-tune the power requirements of different system components and boost battery life by as much as 50 percent.

"[Laptop makers] will be able to control all the resources more efficiently than is done today using drivers," Chapman adds, noting that many software solutions result in incompatibilities, particularly when software is run in protected mode. The 386SL chip set takes up 40 percent less board space, so vendors will be free to add motherboard functionality like VGA controllers or to reduce the size of their systems.

"This chip will help eliminate some trade-offs in size and performance," says IDC's Bruce Stephen, and it will accelerate the migration of full-sized laptop features down to notebooks.

Samples won't reach laptop makers before year-end, and the first 386SL notebooks won't appear until midyear 1991, at prices of $3500 to $5000.

GORDON STUDER

QUATTRO PRO 2 DEBUTS

Spreadsheet War Brings Users $100 Upgrade

In a continuation of their duel, Lotus has begun shipping its new flagship spreadsheet—with upgrades available for the first time from retailers—and Borland has countered with a major revision of *Quattro Pro*, the object of Lotus's look-and-feel lawsuit. The winners are users, who can get either for as little as $100.

Quattro Pro 2.0, due to ship in November, raises the features ante through tight cut-and-paste links with the *Paradox* data base manager and "takes over some of the more powerful features of stand-alone graphics packages," asserts Borland vice president Stephen Kahn.

Although *2.0* lists for $495, Borland will sell it for only $99.95 to any of the 12 million *1-2-3* users who can show even minimal proof of ownership—just $20 more than upgrades for its own customers. Lotus hopes to hold on to users by letting those with *2.01* and earlier versions walk into convenient retail outlets like ComputerLand and receive *3.1* in exchange for as little as $100 and the title page from their manuals.

3.1 supplements *3.0*'s powerful 3-D worksheets with WYSIWYG spreadsheet publishing and runs under *Windows 3.0*. A lack of spreadsheet publishing abilities "was the major functional disparity, and we've addressed it," says Lotus vice president Don Casey.

But Lotus is still losing spreadsheet market share. *Quattro Pro*'s share within large firms climbed to 13 percent in July; meanwhile, *Microsoft Excel* sales through dealers jumped 79 percent that month, thanks to *Windows 3.0*'s introduction, reports Storeboard/Computer Intelligence. Lotus laid off spreadsheet marketing personnel last summer and more recently told analysts to expect diminished profits.

With its graphical orientation, "*1-2-3 3.1* is an indication that Lotus is concerned about *Excel*," notes InfoCorp vice president Bill Higgs. Lotus and Borland are working feverishly on *Windows* entries, and a major *Excel* upgrade is expected within months.

WORDPERFECT OUTLINES WINDOWS PLANS

Superset of Version 5.1 Exploits WYSIWYG

Responding to an unexpected surge in customer demand for *Windows 3.0*, WordPerfect will ship a version of its word processing superstar under that environment in first quarter 1991. The $495 *WordPerfect for Windows* will combine the functionality of version 5.1 with the WYSIWYG layout of *Windows 3.0* and be offered to owners of version 4.2 or later for only $129.

Users will be able to master the new environment within 5 minutes, predicts Product Marketing Manager Devin Durrant. Like Lotus's *1-2-3/G* and the upcoming *WordPerfect for OS/2 Presentation Manager*, *WordPerfect for Windows* sports menus designed to be driven smoothly by a mouse or a keyboard. It includes the traditional *WordPerfect* function key interface, so "for the most part, you'll be able to use the same keystrokes," says Durrant.

Users will gain such familiar *Windows* benefits as the environment's much greater facility with graphics and the on-screen display of typefaces and layout aids such as a ruler for direct adjustment of margins and columns. *WordPerfect for Windows* also will have Undo and the ability to open nine documents at once.

The package supports Microsoft's Dynamic Data Exchange mechanism for live links to other *Windows* packages, and the company is working with Lotus and other vendors to tighten these connections. For example, there will be support for Hewlett-Packard's *NewWave* object-oriented environment sometime next year.

While WordPerfect originally expected OS/2 Presentation Manager to be the graphic standard bearer, *Windows* sales are soaring toward 2 million this year.

GORDON STUDER

DOS 5.0 HELD UP, BETA EXPANDED

Enhancements to Unify 3.x and 4.x Standards

Hoping to avert the kind of false start from which DOS 4.*x* has never recovered, Microsoft will delay introduction of DOS 5.0 until as late as March 1991.

Scheduled for delivery by year-end, the new DOS, which Microsoft hopes will "unify" the 3.*x* and 4.*x* lines under a single standard, was anticipated as early as October by some analysts. Instead, Microsoft has decided to add new features and to drastically expand its beta test program to include thousands of users to ensure maximum compatibility with other software.

The major benefit of DOS 5.0 is a group of memory management enhancements that Division General Manager Russ Werner has said will reduce the operating system's use of conventional memory to less than 20K under some circumstances, compared to a best-case scenario of 55K for DOS 3.3 and 67K for DOS 4.01. While there will be some memory savings for users of XT-class machines, the biggest savings accrue to those running 286 or better platforms with extended and/or expanded memory.

Under some circumstances, much of DOS 5.0 can be loaded above the nominal 640K limit for conventional memory, and programs supporting the DOS-extender standard Virtual Control Program Interface can directly address up to 16MB of memory. *Windows* users running DOS programs in virtual mode also gain conventional memory space. DOS 5.0 is faster and has more commands than previous versions, as does a new, smaller version of the optional graphical shell first introduced in IBM's PC-DOS 4.0.

Microsoft hopes to avoid the bugs and miscues that plagued IBM's 4.0 introduction and reflected poorly on its own MS-DOS 4.01, leading OEM customers to stick with DOS 3.3. "It wasn't so much technical problems with 4.01," explains Micrografx president Paul Grayson, "but a conceptual problem with the version 4 line. People perceived it as a poor product."

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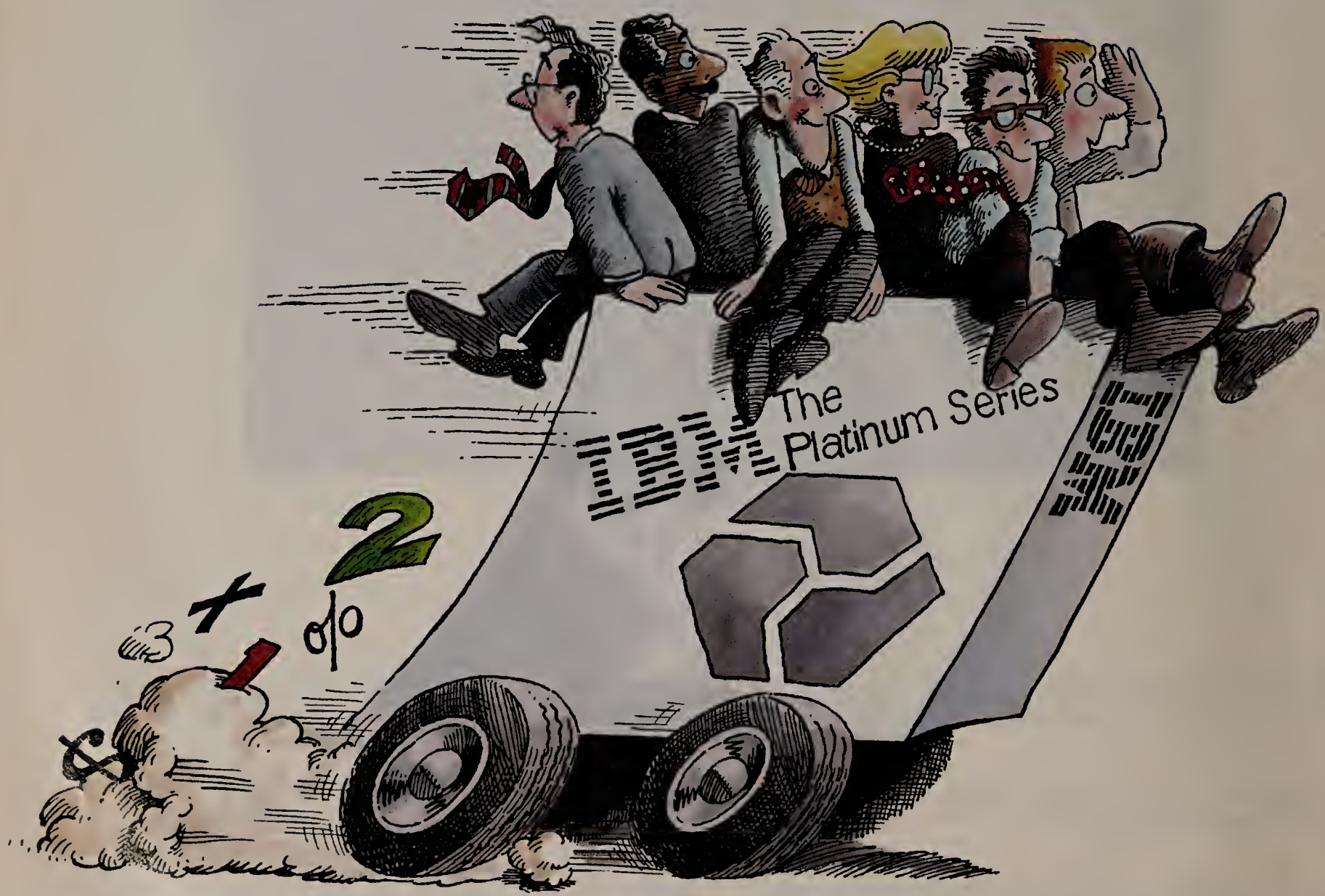

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Keep It Simple

PC users have known the secret of successful software for years. Thank goodness the industry is finally beginning to catch up.

How do you measure PC power—in MIPS, megahertz, and megabytes, or in the amount of work you can get done without wasting time figuring out how to do it?

PC World has always prided itself on stressing ease of use as the basic yardstick of PC software power, but every now and then we receive a jolt that reminds us of our roots. I got zapped the other day while answering questions on a nationwide radio call-in show. One listener wanted to know if there were any programs that let PC users save data with long, memorable file names as you can on a Macintosh, rather than having to resort to DOS's terse and cryptic "8 by 3" shorthand. I could think of only two programs that would do the trick: OS/2 1.2 with the new High-Performance File System, and *NewWave,* Hewlett-Packard's object-oriented extension to *Windows.* In either case, using such an environment just to add long, descriptive names to files is like shooting sparrows with an M16.

It wasn't long before a listener called in with another alternative: *Extend-A-Name Plus* from World Software Corporation. This 50K memory-resident program works within over 40 popular DOS applications, providing them with some of the most important features you'd normally expect only in heavy-duty environments. You can use long file names, group files together by subject matter rather than simply by their physical location on your hard disk, and easily share files on a network without worrying about privacy or lost data. A few OS/2- or UNIX-based network programs can do these things, but none so cheaply or unobtrusively as *Extend-A-Name Plus.*

Simplicity and Power—Do They Really Mix?

Sometimes it seems you have to go whole hog on a high-end environment to find a new degree of simplicity—and you might not always end up getting it. In the ongoing war between Microsoft and IBM over the future of *Windows* and OS/2, for example, IBM continues to assert that OS/2 will greatly simplify the task of linking companywide computer resources, making it easier than ever before to get the data you need, wherever it resides. Yet the early returns are mixed. Software Publishing's OS/2-based *InfoAlliance* provides a seamless path to data integration that impresses everyone who sees it. And Lotus's *Freelance Graphics for OS/2,* with its professionally designed templates and close ties to *1-2-3/G,* makes it easier for busy managers to pull together first-rate presentations. (See the previews of these programs in this issue.) But nobody I know is arguing that OS/2 itself is simple to use, with its complex installation, enormous appetite for hardware resources, and minimal compatibility with the software, printers, and other products you already own.

By contrast, *Windows* has few of the built-in connectivity strengths of OS/2—and few of its installation headaches. But it does have excellent DOS compatibility and has delivered a slew of programs that hold out real promise for making PCs fundamentally simpler to use and more powerful at the same time. A glance at this month's Buyers' Guide to new *Windows* software and our review of presentation graphics packages reveals a number of programs with refreshing approaches to common computing problems—*Faxit,* for example, which lets you turn any *Windows* document into a fax message. In general, the most interesting *Windows* programs don't just offer fancier or more graphical ways to do the same old things. They reinvent their categories, making it easier to do new and more difficult things.

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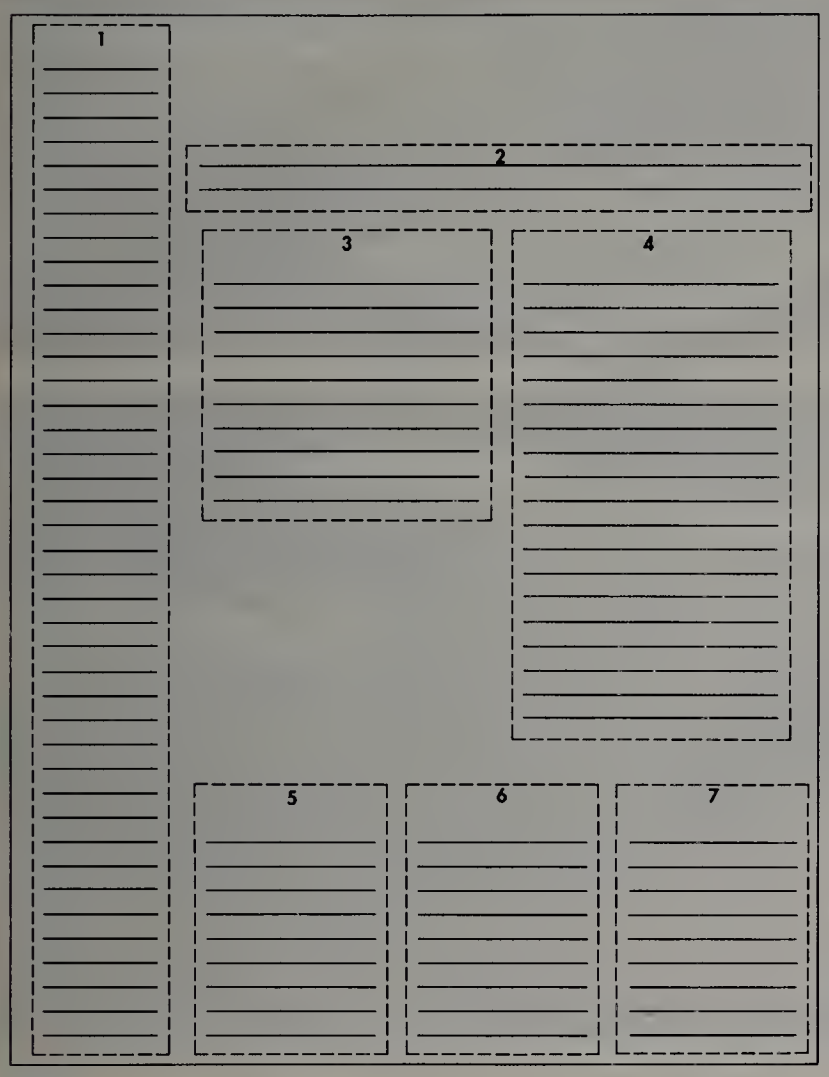
oper can take advantage of enormous power to radically simplify computing, it's *Improv,* Lotus's new spreadsheet for the Next computer. While you're not likely to see this product on your PC for a few years, *Improv* points to a future in which software grows increasingly more powerful while simultaneously becoming easier to use. According to Lotus R&D guru Ed Belove, *Improv* is a program that just couldn't be done in any other software environment that exists today, *Windows* and OS/2 included. Why? The graphics are better on the Next, Belove says, thanks to Display PostScript. That made it possible for Lotus developers to create on-screen buttons and labels that substitute for an otherwise tedious array of menu commands. And because *Improv* was built in the highly flexible NextStep software environment, Lotus was able to show the product repeatedly to prospective customers and quickly incorporate their suggestions and criticisms into the development effort.

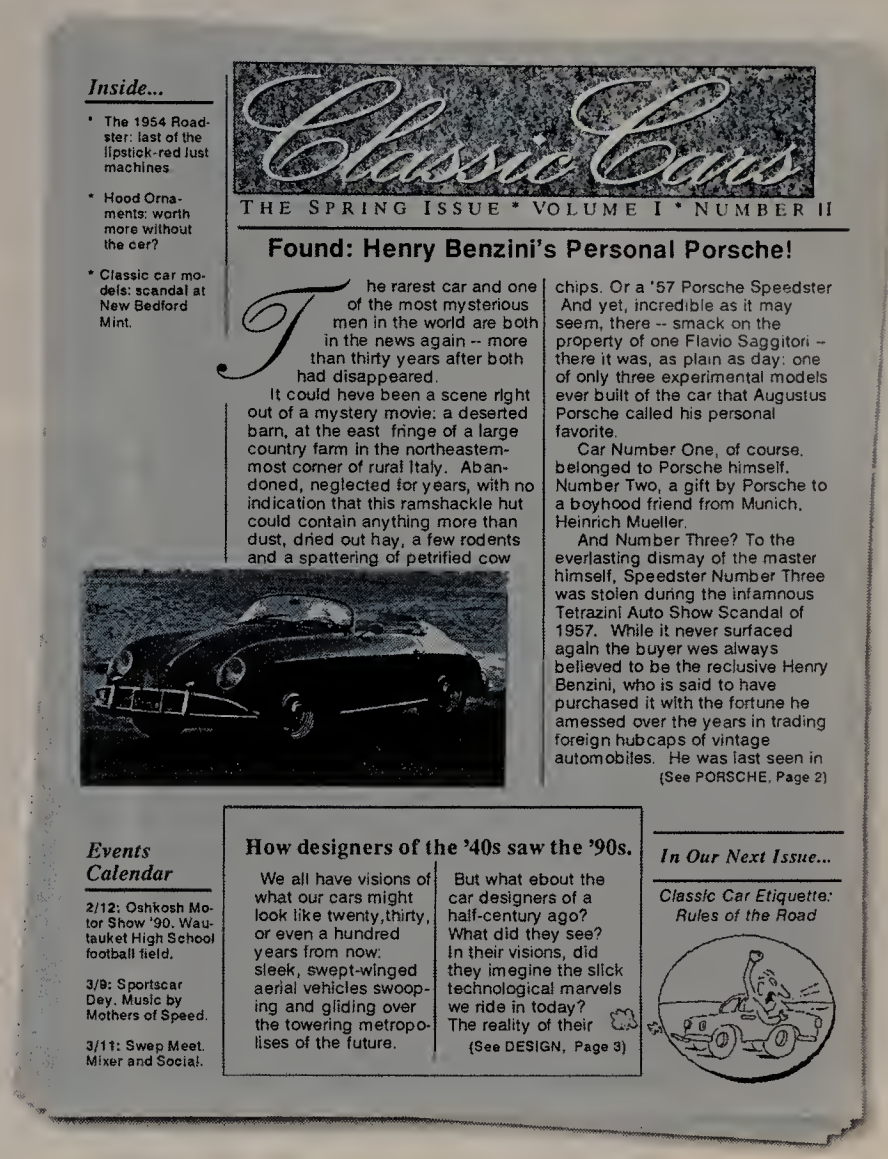
Improv exploits enormous power to radically simplify computing.

But it shouldn't require a turbocharged workstation on every desktop for developers to start creating more *Improvs*, *Extend-A-Names*, and *FaxIts* for every application and pocketbook. If all it takes is listening to what users really want and filling their needs in a way that exceeds their expectations, then the developers can start today. And judging from the great products in this issue, some of them already have.

As always, I'm interested in your opinions on this or any other subject. Write me at *PC World,* 501 Second St., San Francisco, CA 94107; fax 415/442-1891; MCI Mail Richard Landry/301-3685.

Jumpstart your newsletters.





Inside...

- The 1954 Roadster: last of the lipstick-red lust machines.
- Hood Ornaments: worth more without the car?
- Classic car models: scandal at New Bedford Mint.

Classic Cars

THE SPRING ISSUE * VOLUME I * NUMBER II

Found: Henry Benzini's Personal Porsche!

The rarest car and one of the most mysterious men in the world are both in the news again -- more than thirty years after both had disappeared.

It could heve been a scene right out of a mystery movie: a deserted barn, at the east fringe of a large country farm in the northeastern-most corner of rural Italy. Abandoned, neglected for years, with no indication that this ramshackle hut could contain anything more than dust, dried out hay, a few rodents and a spattering of petrified cow chips. Or a '57 Porsche Speedster And yet, incredible as it may seem, there -- smack on the property of one Flavio Saggitori -- there it was, as plain as day: one of only three experimental models ever built of the car that Augustus Porsche called his personal favorite.

Car Number One, of course, belonged to Porsche himself. Number Two, a gift by Porsche to a boyhood friend from Munich, Heinrich Mueller.

And Number Three? To the everlasting dismay of the master himself, Speedster Number Three was stolen during the infamnous Tetrazini Auto Show Scandal of 1957. While it never surfaced again the buyer wes always believed to be the reclusive Henry Benzini, who is said to have purchased it with the fortune he amessed over the years in trading foreign hubcaps of vintage automobiles. He was last seen in

(See PORSCHE, Page 2)

Events Calendar

2/12: Oshkosh Motor Show '90. Wautauket High School football field.

3/9: Sportscar Dey. Music by Mothers of Speed.

3/11: Swep Meet. Mixer and Social.

How designers of the '40s saw the '90s.

We all have visions of what our cars might look like twenty, thirty, or even a hundred years from now: sleek, swept-winged aerial vehicles swooping and gliding over the towering metropolises of the future.

But what ebout the car designers of a half-century ago? What did they see? In their visions, did they imegine the slick technological marvels we ride in today? The reality of their

(See DESIGN, Page 3)

In Our Next Issue...

Classic Car Etiquette: Rules of the Road

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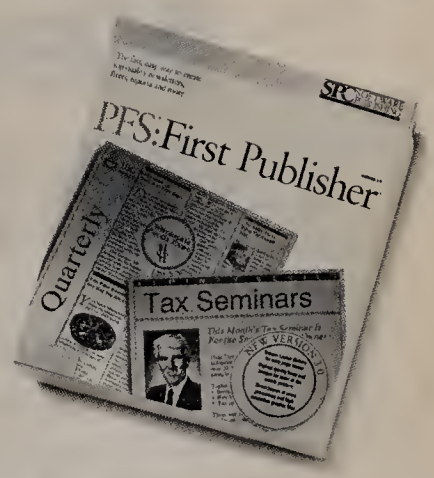

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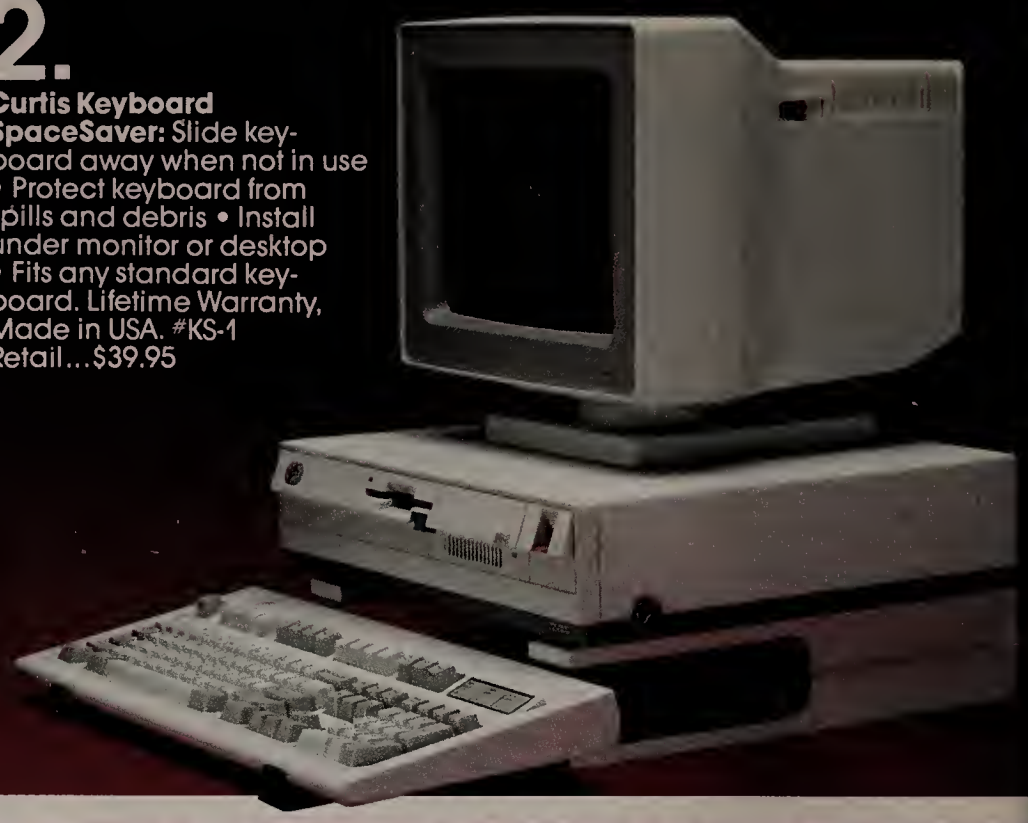

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LETTERS

Reactions and responses from the PC World community

BUD PEEN

True Blue?

IBM won't learn from its past mistakes. Here they are again, trying to enter the home market with the PS/1—a slow, underpowered, unexpandable, overpriced machine. In essence, it's the PCjr all over again, and it'll die the same death. Today's computer user wants a system that's powerful, expandable, and cheap. The PS/1 fits *none* of these criteria. Too bad IBM is too far removed from reality to realize that users want computers they can add to without draining their bank accounts.

Ken Simmons
Auburn, Washington

When I saw your August cover featuring the PS/1, I wondered if you could bring yourselves to say something complimentary about IBM. What I found instead was more Big Blue bashing. The list of built-in hardware, software, and support goes on and on, but you chose to nitpick about the upgrade path. How many home computer users will ever need to upgrade a system that already has a 10-MHz 80286 processor, VGA, 1.44MB floppy, 30MB hard disk, mouse, and internal 2400-bps modem, plus DOS in ROM? It's too bad you don't see the value of the PS/1.

Mitch Wright
Gurnee, Illinois

Calling Interference

In July's *Letters*, Tom McGrane asks, "When was the last time you received interference from any computer?" As a licensed amateur radio operator, I often have difficulty communicating with weak-signal stations owing to RF "hash" from neighbors' computers. My IBM PC, PS/2, and Commodore all emit broad-band interference; I dare not switch them on when using my radio equipment. FCC regulations are barely stemming the flood—we certainly don't need standards to be relaxed any further.

Colin R. Hall
Topanga, California

Thanks for the Ride

Thanks, *PC World*, for the *Windows 3.0 Test Drive!* I was excited to see your disks in my mailbox, and I made an immediate dash for my computer to see what wonderful new things I could do.

Mary M. Grigware
Grand Rapids, Michigan

Affording a Clone

I read with interest "Can You Afford a No-Name Clone?" in August. The subject is the source of great controversy in my company, which currently has 92 PCs, a couple of Novell networks, and a Tymnet connection. I am always open to saving money, but I've been stung so many times that I now specify only two brands: Dell and IBM. Short-term savings are nice, but the downtime and Maalox factor of a pile of junk removes the savings in the long run. One reason Dell can offer such a good service contract is because it rarely gets used.

Daniel J. Karnes
Burlington, Massachusetts

Your August no-name clone article is misleading. True, the prevailing corporate mood is to go with the big guys, but careful shopping for a clone—paying attention to the components used and support offered—can net you a fine computer. The major difference between it and the name brand will be the extra $2000 or more in your pocket.

Lee Stegenga
Beaumont, Texas

Thanks for the article on clones. Our business has been enthusiastic about them for some time. You can get two machines for the price of one when you buy less well known names. But before you buy one, make sure you actually test-drive the machine with your software and peripherals.

Jordan Rosenberg
San Francisco, California

Wide Open Windows

Your otherwise fine articles about *Windows 3.0* in July leave readers with the impression that *Windows 3.0* is only suitable for AT-class and higher sys-

(continues)

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tems. How wrong! I am running *Windows 3.0* on a 10-MHz XT with 640K of RAM and a CGA monitor. Processing may be slow—and I am unable to perform multitasking—but it runs! My system isn't powerful compared to a 386, but it serves its purpose—and with *Windows 3.0*, life just got a lot easier.

Andreas L. Bynum
Colorado Springs, Colorado

I enjoyed your excellent preview of *Windows 3.0*. I've been a *Windows* user for years, but I was never able to fully use my 7MB of RAM. Now all that has changed with *Windows 3.0*. I can load *Excel*, *Word for Windows*, and *Ami Professional* and still have about 40 percent of my conventional memory left.

John E. Johnson, Jr.
Redwood City, California

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Big SX Buying Decisions

Your August SX review ["14 SX Systems: Big Deals in Small Boxes"] was misleading and unfair. You would have buyers believe that only a 40MB hard disk is available from Mitsubishi dealers. Not true! I purchased an MP 386S from an authorized dealer with an 80MB Seagate. And I bought several MP 386S computers for hundreds less than your listed street price.

Michael Hatfield
Savannah, Georgia

The Where to Buy information in PC World *reviews lists manufacturers' options only. Individual dealers can often equip a system with components not offered by the vendor. As stated in the review, street prices represent an average of actual selling prices in eight major U.S. cities; we recognize that price-conscious buyers can often find a better price, greater dealer support, or both. —Ed.*

Bar None...

I noted with interest the August *Professional Edge*. In referring to ABA/Net, the American Bar Association's on-line service, you incorrectly state that the "only other on-line service that offers a...comparable package of services and data bases is CompuServe." I am the administrator of the Electronic Bar Association Legal Information Network on BT Tymnet (Dialcom). EBA offers an alternative providing essentially the same services as ABA, including electronic mail, document transfer, and access to over 1000 data bases (including Dialog, Dow Jones, NewsNet, etc.). We also offer Lexis at this time for no extra fee beyond the $10 monthly subscription fee for BT Tymnet. For more information, call 312/951-8451.

Paul Bernstein
Chicago, Illinois

Backing Up a Review

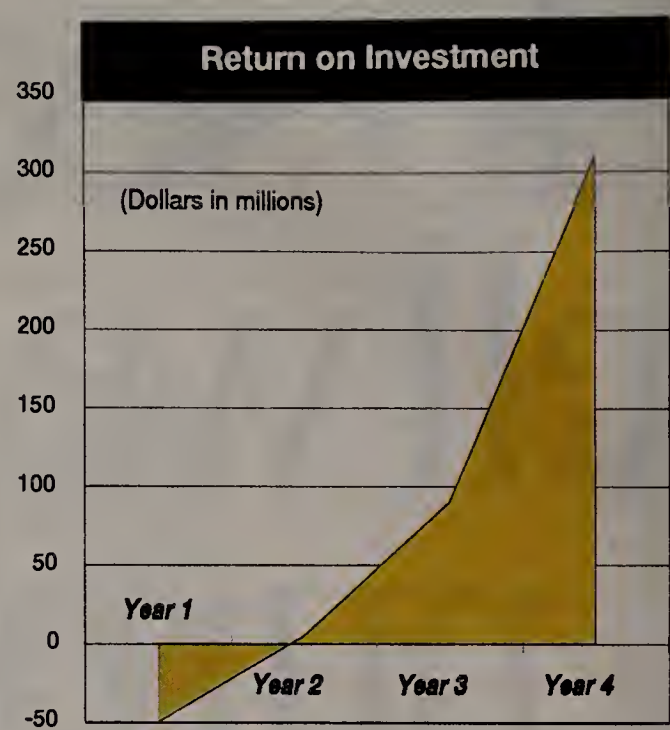
Your July review of backup programs ["No-Excuses Backup Software"] con-

(continues)

To see how well we crunch numbers, look at our graphics.

Microsoft Excel for Windows.

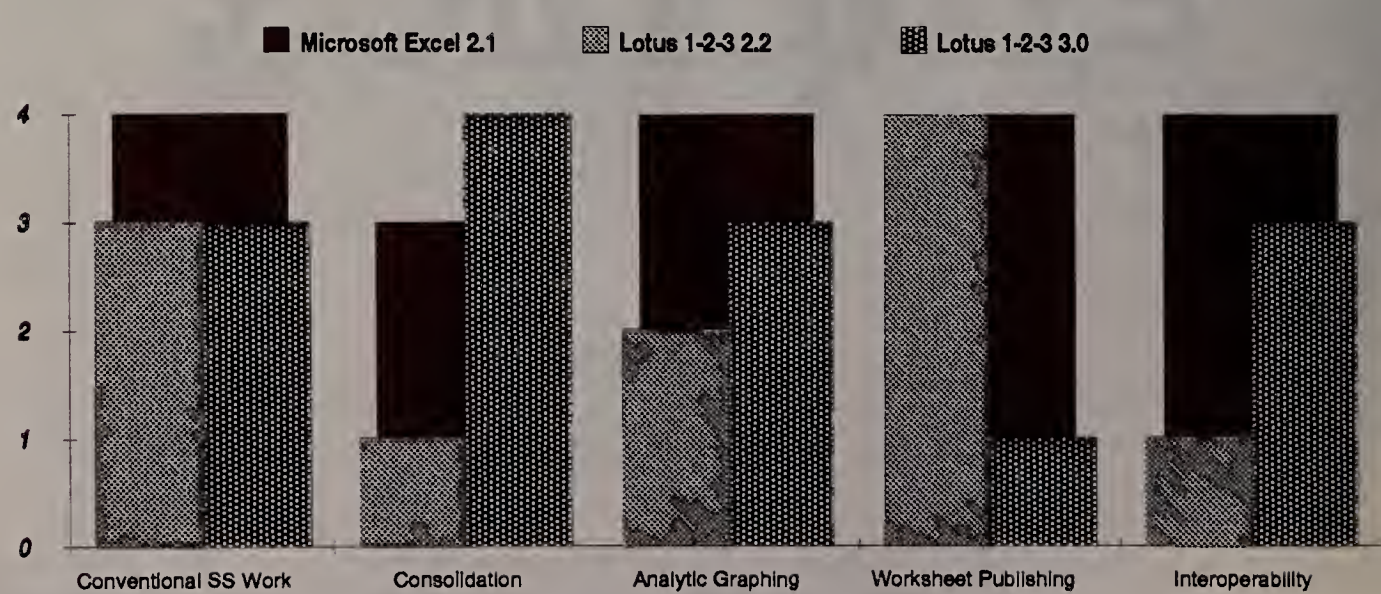
"With solid spreadsheet and charting components and a comprehensive macro language integrated into a powerful graphical environment, Excel is no more 'just a spreadsheet' than a Ferrari or a Porsche is 'just a car.'" **PC Magazine**



*Based on the findings of a recent study, switching to graphical applications can yield increased productivity and can result in these dollar savings. ****

Recently, *PC Magazine* placed Microsoft Excel version 2.10 head to head with Lotus 1-2-3 release 2.2 and 3. They measured the essential criteria by which spreadsheets are judged. As you can see from the chart, Microsoft Excel proved to be superior in its balance of capabilities. Further evidence of the advantages of the graphical-based Microsoft Excel over the character-based Lotus 1-2-3 can be seen in a recent study.

Over the years, graphical-based applications result in significant dollar savings since they are faster to learn, faster to use and less frustrating to master.



In this chart, PC Magazine** *compares the salient spreadsheet criteria of Microsoft Excel and Lotus 1-2-3. As you can see, Microsoft Excel showed its superiority.*

(Incidentally, this report was created using Microsoft Excel linked with Microsoft Word for Windows.)

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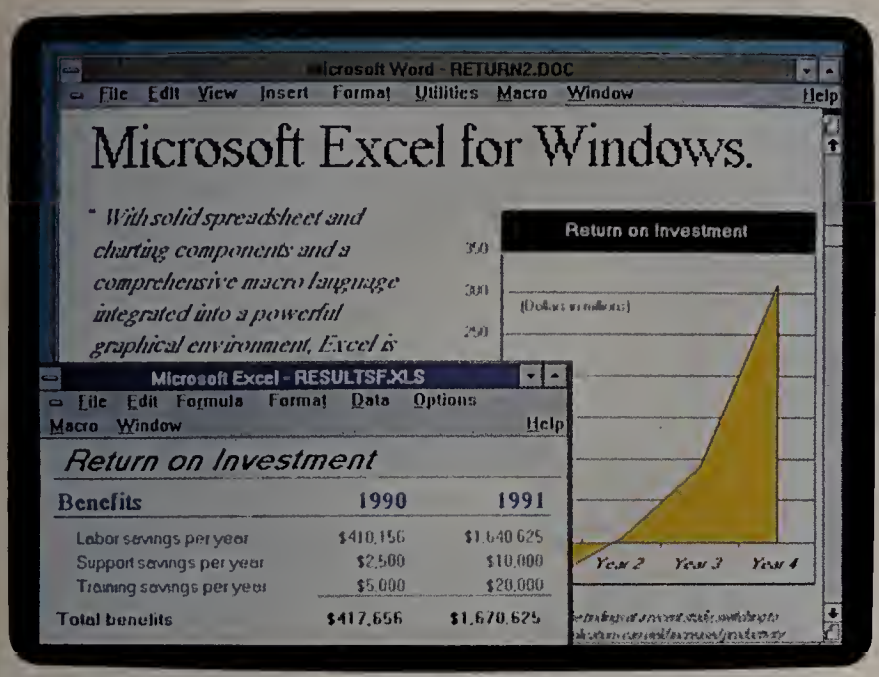
If you read the report at the left, you can see in just a couple of seconds how well Microsoft® Excel for Windows™ can crunch numbers.

Which is exactly our point.

Whatever analytic case you're making, it's much more easily made with a comprehensible, bottom-line report than with a row and column spreadsheet.



Windows can display Microsoft Excel and Word for Windows at the same time so you can see how all elements of your analysis will go together.

And that's not to give up one iota of analytic power.

Fact is, Microsoft Excel gives you more power to make sense of numbers than any other spreadsheet going. Simply because whether you're analyzing or reporting, you get the power of the Microsoft Windows environment every step of the way.

For instance, you can display multiple spreadsheets simultaneously. So you can see all your data and all the relationships at once.

If you want to link a couple of those spreadsheets, just point, click.

And consider it done.

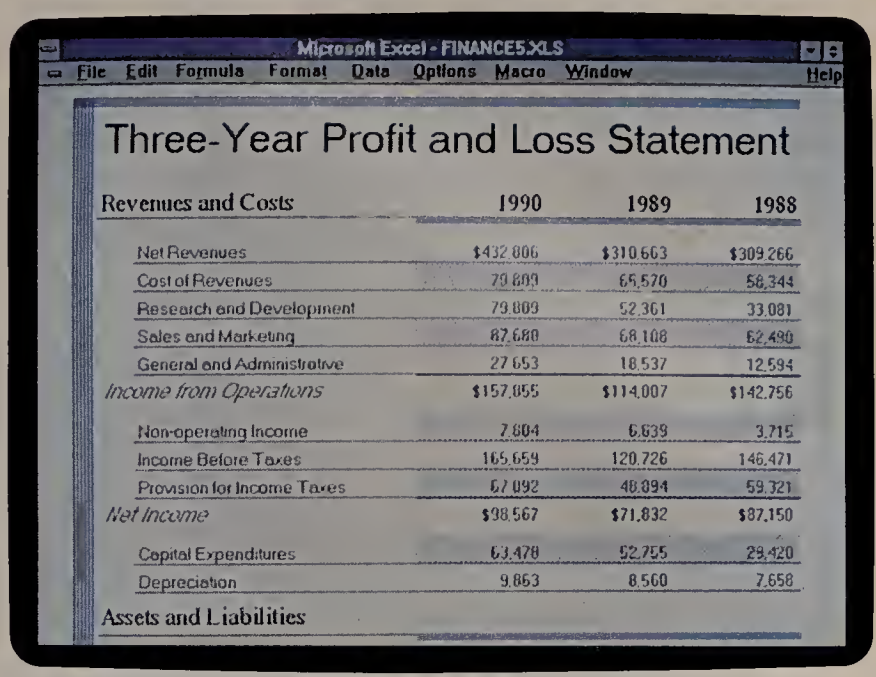
Or if you want to pull data from a variety of databases, you guessed it. Point, click and done.

Then before you wind up, you can do an audit of every formula to give you absolute confidence in your result.

And onto the finish. Which is where your results will really shine.

You can simply dress up your spreadsheet with color, shading, borders and a variety of type fonts.

Or you can chart your numbers hundreds of different ways to make them look really impressive.



Under the Windows environment, WYSIWYG lets you see exactly how your work will print out while you're creating it.

Then when you want to pull out all the stops, you can easily create full-blown reports that mix text, graphics and data. Just copy and paste using other Windows applications, like Word for Windows.

And if you're starting to worry about change, don't. Microsoft Excel reads and writes Lotus® 1-2-3® files. So making a change for the better is easier done than said.

To prove it, we'll send you a free* fully functional Working Model of Microsoft Excel for Windows. Simply crunch these numbers: (800) 541-1261, Dept. M67.

That way you can see for yourself if our final analysis is correct.

Microsoft®

Making it all make sense™

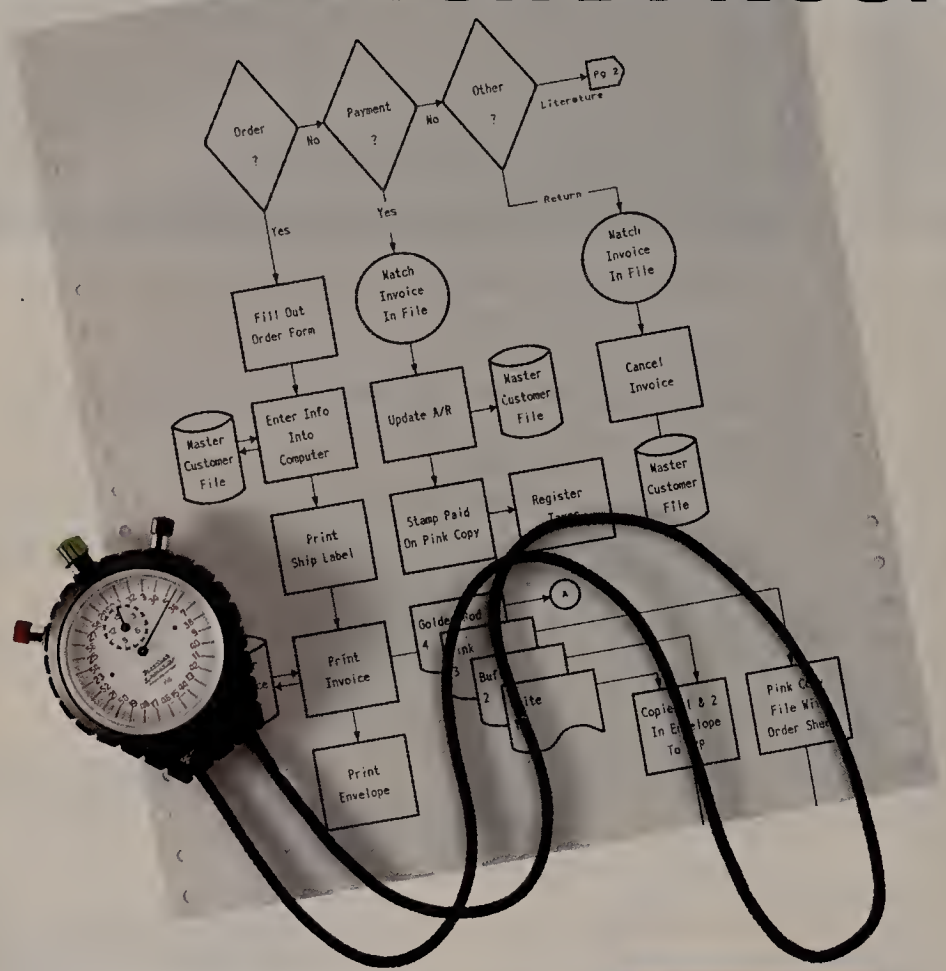
ke sense and Windows are trademarks of Microsoft Corporation. Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation. *The first Working Model you select is free during our Windows Computing Promotion, September 15 through
nications Company. ***"The Benefits of the Graphical User Interface" prepared Spring 1990, by Temple, Barker & Sloane, Inc.

tained several errors and misleading statements about *FastBack Plus*. Data security wasn't tested, and there's no report of any product's ability to recover data from damaged disks. Your Features Evaluation mistakenly reports that *Fastback Plus* users have to view a log file to identify an individual file's volume—*Fastback Plus* does smart restores and prompts only for necessary volumes. Our product does indeed support several tape drives. Finally, *Fastback Plus* does append incremental backups to the existing backup. For precautionary reasons, this is done on a new disk, which is given a volume number greater than the last volume of the previous backup.

Barry L. Bellue, Sr.
President and CEO
Fifth Generation Systems, Inc.
Baton Rouge, Louisiana

We informally tested all the backup products' ability to restore data from damaged disks. Fastback Plus 2.1, Norton Backup 1.0, *and* PC Tools 6.0 *all restored flawlessly, and we gave all three programs excellent ratings for data security.* Fastback 2.1 *does in fact perform smart restores, append incremental backups, and support tape drives. However,* Fastback 2.1 *supports only drives that can be referenced by a DOS drive letter (which excludes many popular tape drives).* PC World *regrets the error. —Ed.*

BY HAND. OR BY NOON.



Announcing Flow Charting™ 3

Now, even complex flowcharts that once took days to perfect can be presentation-perfect—in no time!

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IBM is a registered trademark of International Business Machines Corporation.

Circle 233 on reader service card

Corrections and Clarifications

The Executive Summary for our September "Project Management Reaches the Real World" incorrectly lists the Overall Value of *Harvard Project Man-*

(continues)

POWER TIP NO. 141

Better Reading and Writing With a Clean Drive

If you can no longer read or write to 360K-formatted double-density disks with your 1.2MB floppy drive, it's possible that the drive may just need a cleaning. Dirt on the heads of high-density drives can affect their ability to write to double-density floppies, even though the drives may still write reliably to high-density disks. So before you run out to buy a new one, try blowing the dust out of your drive and then cleaning it with a commercial cleaning kit.

H. G. Lawrence
Warm Springs, Georgia

In Redondo Beach, California . . .

You'll find breathtaking ocean views, sensational surfers and Gateway 2000 computers.

Dive 'N Surf, famous for Body Glove® fashions and watersports equipment, is a

Graham Pask, Computer Systems Manager for Dive 'N Surf, and his Gateway 2000 25 MHZ 386 network server.

member of the growing family of Gateway 2000 customers in California. Dive 'N Surf Computer Systems Manager Graham Pask chose a Gateway 25 MHZ 386 machine for his network server. The system runs point-of-sale, inventory control, word processing and desktop publishing software.

"I decided to buy a Gateway 2000 system because they had everything I wanted for a good price," said Graham. "But what really impressed me was the service. I had a problem with my 3 1/2 inch drive so they sent me a new drive the very next day."

Graham said he was so happy with his Gateway system at work that he bought a Gateway 2000 25 MHZ 386 Cache machine for his home.

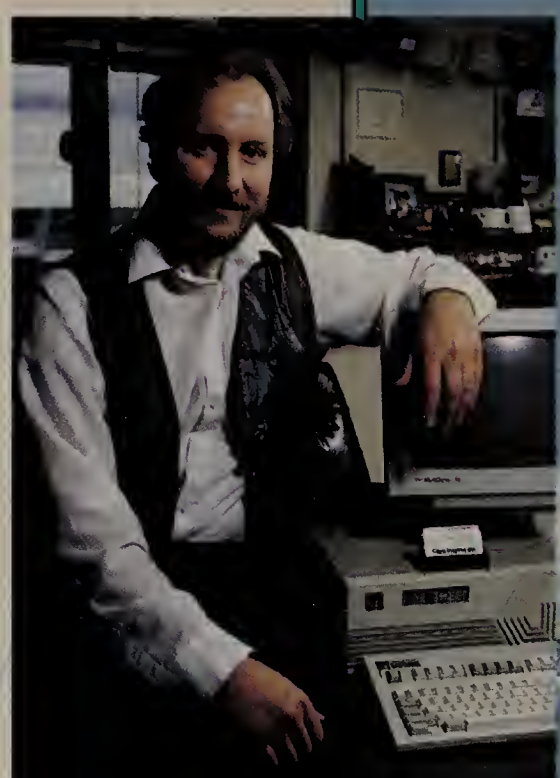
GATEWAY2000

"You've got a friend in the business."

Until well after sunset, surfers ride the big waves on the Pacific Ocean near Redondo Beach, California.

And In Barrow, Alaska . . .

Over 300 miles north of the Arctic Circle, you'll find polar bears, seals, whales, walrus, lemmings, snowy owls and what appear to be the largest mosquitoes in existence. On a summer afternoon you'll also see parka-clad tourists walking among local residents in shorts. And of course you'll find a good Mexican restaurant and Gateway 2000 computers.



Jeff Frier, Cape Smythe Air Service, with his Gateway 2000 386SX.

Cape Smythe Air Service, a regional commuter airline serving Barrow, Kotzebue, Nome and remote villages in Alaska, has one of several Gateway 2000 computers operating in Barrow. Jeff Frier, Cape Smythe's accountant, chose a Gateway 2000 386SX to run spreadsheet, data base and accounting applications.

"I was trying to decide between Gateway 2000 and a competitor," Jeff commented, "so I talked to a person who owns the competitor's system. He was disgruntled about the service he received from them. Then I talked to another person in Barrow who has a Gateway and she was happy with the product and service. The choice was pretty obvious -- when you're doing business in a remote area, the most important things a vendor can offer are reliability and good service."

Jeff said he also appreciated Gateway's features and price. "When you have to pay $6 a gallon for milk, it's nice to find a bargain somewhere." Jeff plans to buy another Gateway 2000 computer in a few months .

On a mid-July day in Barrow, Alaska, fishing boats weave in and out of icebergs on the Chukchi Sea.

In Bradford, Pennsylvania . . .

You'll find a charming small city nestled in the Allegheny National Forest. The city's most prominent local business is the Zippo Manufacturing Company, where you'll find 18 Gateway 2000 computers in use.

Fred Gronemeyer, Zippo Manufacturing Company, and his Gateway 2000 20 MHZ 386 system.

Zippo is known around the world for its windproof lighter made famous during the second World War, although today the company's product line includes many other specialty advertising items. Fred Gronemeyer, Systems Analyst for Zippo, chose Gateway 2000 as the company's standard PC.

"We needed to set standards for PC's and software to make the most efficient use of these tools," Fred remarked. "We started out with PC's from different manufacturers, but once I tried Gateway I was convinced we could get the highest quality, most reliable machines at the best price from Gateway 2000. I was also impressed by my salesman and the tech support people I've dealt with at Gateway."

Fred said by the end of the year Zippo will be running every system Gateway 2000 makes, from 286's up to a 486 and everything in between.

Main Street, U.S.A., is located in Bradford, Pennsylvania.

And In New York City . . .

You'll find your senses overwhelmed by the countless sights and sounds of this one-of-a-kind city. And of course you'll find thousands of Gateway 2000 computers here.

One New York City Gateway 2000 owner is

Jim Rondinelli, independent record producer and engineer, with his Gateway 2000 386SX.

independent record producer and engineer Jim Rondinelli. Jim uses his Gateway 2000 386SX with a sophisticated player piano sequencer to compose music.

"The software I use is written for the Mac and for IBM compatibles," Jim said, "but it runs much better on IBM compatibles. And it runs best of all on my Gateway. I travel often and I've used my software on a lot of other machines. They don't even compare with my Gateway 2000."

Jim said he bought his Gateway 2000 because it was equipped for the real world with ample hard drive capacity and RAM, both sizes of disk drives and color VGA graphics.

"It's the fastest file transfer computer I've ever used," continued Jim, "plus it ran right out of the box. One afternoon and I was fully functional on a brand new system."

The streets of Manhattan are a constant blur of activity.

Near Camp Verde, Texas . . .

You'll find the magnificent Hill Country of Texas with rattlesnakes, prickly pear cactus and huge cattle ranches. You'll also find Larry Mahan and his Gateway 2000 computer.

Larry Mahan is to rodeo what Jack Nicklaus is to golf. He is Six Times World Champion All-Around Cowboy and is a member of the Cowboy Hall of Fame. But Larry also runs a cattle and horse ranch and is involved in a western apparel manufacturing company and a new Southwestern foods company. His Gateway 2000 20 MHZ 386 system is an integral part of his business operations. "We run cow and calf software for our Longhorn cattle herd," Larry said. "You can't really manage a livestock business efficiently without it. Plus we do accounting, spreadsheets and word processing on our Gateway 2000 computer."

Larry Mahan, rodeo star, and his Gateway 2000 20 MHZ 386 system.

Asked why he chose Gateway 2000, Larry said, "They had the best features and price – and I thought a computer company that puts pictures of cattle in their ads had to be my kind of people. And I was right. The people I've talked with at Gateway 2000 are honest-to-goodness nice folks. It's a pleasure doing business with them."

Larry Mahan raises registered Texas Longhorn cattle.

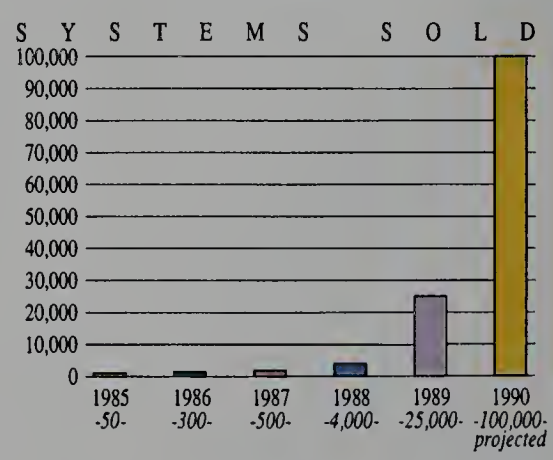
Across The Country You'll Find

You'll find so many Gateway 2000 computers in so many places today because people everywhere know a good value when they see one. In all 50 states and in over 70 foreign countries, thousands of people are comparing prices, quality and service – and choosing Gateway 2000.

But value alone doesn't explain how a little company in the Midwest, started just five years ago, managed to outdistance hundreds of other companies, selling more systems through the direct market channel today than any other PC manufacturer in the country.

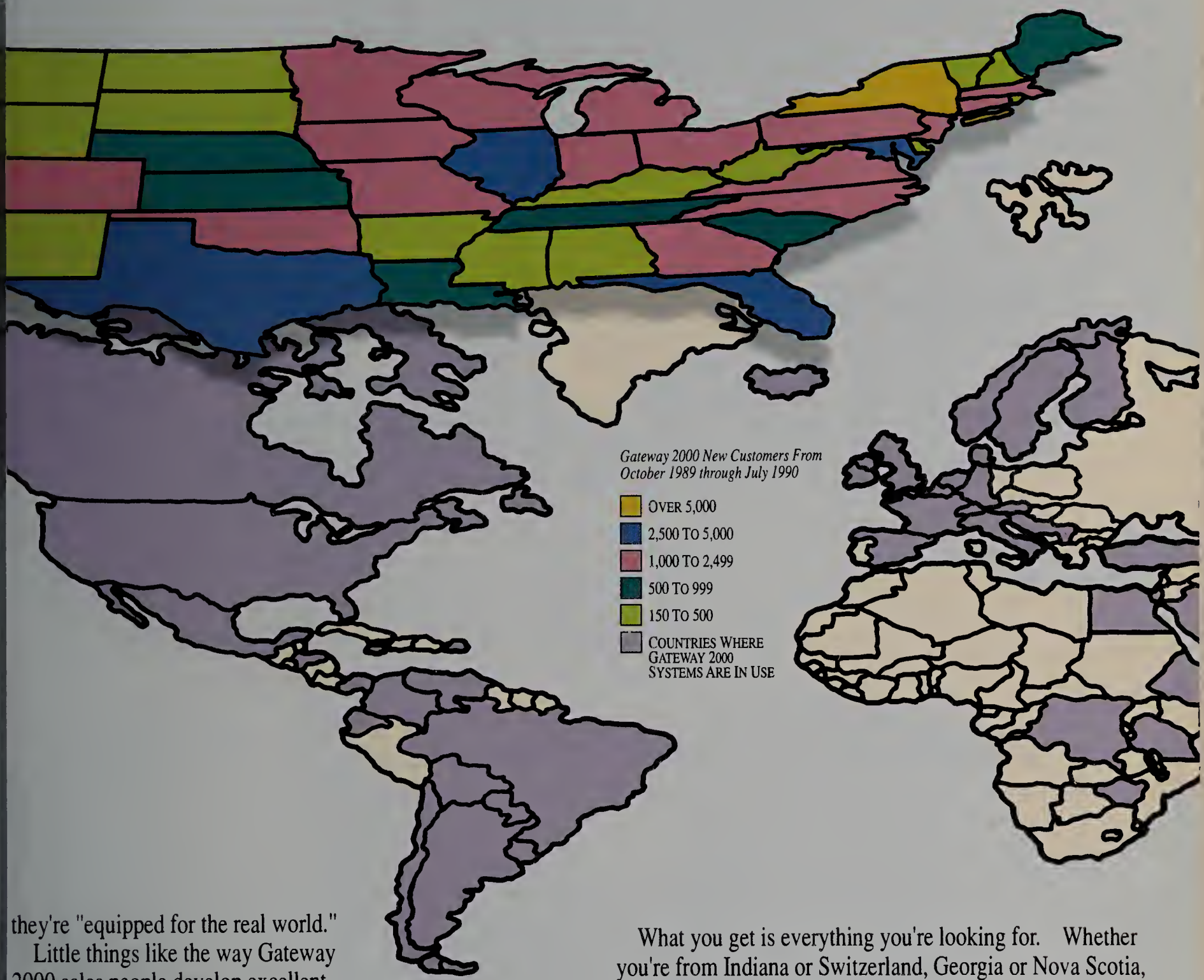
The explanation is that the company has always maintained a small company attitude. With Gateway 2000, you still get the little things you'd expect only from a small firm.

Little things like a positive technical support department. When Graham Pask told his Gateway 2000 tech rep that his 3 1/2" drive didn't work, he received a new drive the very next day.



Little things like the way Gateway 2000 systems are fully loaded with all the features you want. Jim Rondinelli bought a Gateway 2000 computer because

AND AROUND THE WORLD, GATEWAY 2000!



they're "equipped for the real world."

Little things like the way Gateway 2000 sales people develop excellent business relationships with their customers. Fred Gronemeyer tried his first Gateway because he was impressed by his sales person. Eighteen systems later, Fred is still impressed by his sales person.

And the biggest little thing of all is the feeling you get when you deal with the people at Gateway 2000. As Larry Mahan said, "they're honest-to-goodness nice folks."

Compare prices, quality and service. Then add up the little things you get from small town people running an old-fashioned, high-tech business.

What you get is everything you're looking for. Whether you're from Indiana or Switzerland, Georgia or Nova Scotia, you've got a friend in the business at Gateway 2000.

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- 101 Key Keyboard
- MS DOS 3.3 or 4.01

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- 1.44 Meg 3.5" Drive
- 40 Meg 17ms IDE Drive
- 16 Bit VGA with 512K
- 14" 1024 x 768 Color Monitor
- 1 Parallel & 2 Serial Ports
- 101 Key Keyboard
- MS DOS 3.3 or 4.01
- MS WINDOWS 3.0

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20MHZ 386VGA

- 4 Megs RAM
- 1.2 Meg 5.25" Drive
- 1.44 Meg 3.5" Drive
- 80 Meg 17ms IDE Drive
- 16 Bit VGA with 512K
- 14" 1024 x 768 Color Monitor
- 1 Parallel & 2 Serial Ports
- 101 Key Keyboard
- MS DOS 3.3 or 4.01
- MS WINDOWS 3.0

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25 MHZ 386 VGA
$2695.00

25MHZ 386CACHE

- 64K Cache RAM
- 4 Megs RAM
- 1.2 Meg 5.25" Drive
- 1.44 Meg 3.5" Drive
- 110 Meg ESDI Drive
- ESDI Cache Controller
- 16 Bit VGA with 512K
- 14" 1024 x 768 Color Monitor
- 1 Parallel & 2 Serial Ports
- 101 Key Keyboard
- MS DOS 3.3 or 4.01
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- 4 Megs RAM
- 1.2 Meg 5.25" Drive
- 1.44 Meg 3.5" Drive
- 150 Meg ESDI Drive
- ESDI Cache Controller
- 16 Bit VGA with 512K
- 14" 1024 x 768 Color Monitor
- 1 Parallel & 2 Serial Ports
- 101 Key Keyboard
- MS DOS 3.3 or 4.01
- MS WINDOWS 3.0

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25MHZ 486VGA

- 64K Cache RAM
- 4 Megs RAM
- 1.2 Meg 5.25" Drive
- 1.44 Meg 3.5" Drive
- 150 Meg ESDI Drive
- ESDI Cache Controller
- 16 Bit VGA with 512K
- 14" 1024 x 768 Color Monitor
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If our standard configurations don't fit your needs, we'll be happy to custom configure a system just for you. Due to the volatility of the DRAM market, all prices are subject to change.

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Your money's on the line, so choose your weapon carefully.

ChipSoft

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Haven't you heard?

You should know about EasyFlow!

Chances are you've heard one of our 80,000 ecstatic customers talking about **EasyFlow**.

They're talking about how much time you can save on flowcharts and data flow diagrams and how **EasyFlow**, unlike most "screen draw" programs, is dedicated to fast composition and modification of flowcharts and data flow diagrams.

They're talking about the automatic line routing, automatic text centering, the slick cut & paste and how they can create charts and then cleanly move them into a desktop publishing program.

They're talking among themselves but they don't tell their bosses. Their bosses think they had to sweat bullets to come up with these amazing results. *You mean you still do?!*

They're saying **EasyFlow** works with most matrix printers, laser printers and plotters and comes with a 200 page manual.

They're saying they got all this plus 350 context sensitive help messages on screen for only $149.95 *and* that RUSH delivery is available.

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Circle 79 on reader service card

ager 3.01. The correct rating is Fair. *PC World* regrets the error.

Here are corrected contact listings for user groups that appeared in August *Consumer Watch:*

Atlanta IBM PC User's Group, c/o Bob Johnson, P.O. Box 28788, Atlanta, GA 30358; 404/393-1629.

Las Vegas PC Users Group, c/o Dick Dickstein, 4820 Alpine Pl. #G202, Las Vegas, NV 89107; 702/878-1777.

South County IBM PC User Group in Castro Valley, California, has disbanded; please don't call or write.

Power Tip No. 128, "dBASE Procedure Files," on page 158 of the September issue contains a typesetting error. The fourth line from the bottom should be **SET PROCEDURE TO ;**.

Send your reactions, responses, and ideas to Letters, PC World, *501 Second St. #600, San Francisco, CA 94107; CompuServe 74055,412; MCI Mail PC World Editorial; or 415/442-1891 (fax). Please include your name, city, and state. We reserve the right to edit letters.*

POWER TIP NO. 142

Disk Space and Desqview

When *Desqview* runs out of memory, it starts swapping background programs to temporary files named SWAP????.DV. If you reboot while *Desqview* is running several programs, these files may not be erased. Since they usually take several hundred kilobytes each, this can add up to megabytes. So it's a good idea to check occasionally for SWAP files in your DV directory and erase any old ones.

Lincoln Spector
Assistant Editor

NEW! FORMTOOL GOLD!

Just Sit Down and Create a Great Form!

The Best-Selling Forms Software In the World!

It's easy to see why FormTool is the best-selling forms package in the world. It's the fastest, easiest way to create, edit, manage and print custom, professional forms for immediate information gathering.

The ability to quickly gather data and put it to work is critical to corporate information flow. FormTool's "Intelligent Line Drawing" and its hardware compatibility make it an indispensable tool for businesses of any size. That's why FormTool has found a home in well over half of the Fortune 500 companies, along with thousands of educational institutions, government agencies, hospitals and financial organizations around the world. They've discovered FormTool's productivity and information gathering power.

Unlike its competitors, FormTool doesn't require additional memory, a graphics card, color display, mouse or scanner. It runs beautifully on anything from an XT to a 486. FormTool now supports hundreds of dot-matrix, letter-quality, daisywheel, thermal as well as Hewlett-Packard and new support for PostScript lasers.

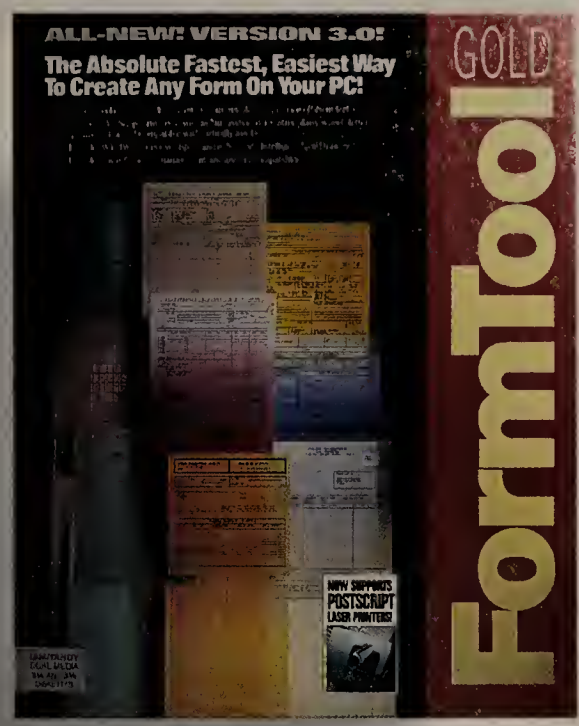
Draw Forms with Unmatched Speed.

FormTool streamlines the PC's ability to draw forms. Lines of any weight, boxes of any size, grids of any complexity and more can be quickly drawn with just a few keystrokes. If a grid isn't quite right, one keystroke redraws it to meet your exact specifications, then displays it on the screen with our WYSIWYG display. Zoom in to see a close-up of your form, then zoom out for the full page view. If you spot a problem, quickly make the revision, preview it again — then print it.

This preview capability combines the advantages of a graphics-based, on-screen display with text-based, lightning-fast processing times and makes FormTool even easier to use — and enhances creativity and accuracy in the design process.

FormTool's ability to make instant revisions to your forms gives you the flexibility to create exactly the proper form to meet the precise requirements of your work flow. And FormTool is so simple to use, it's ideal for users of any experience level right out of the box.

No other forms package delivers the productive drawing power of FormTool.



Anatomy of a FormTool Form

Horizontal And Vertical Line Drawing.
All you have to do is position the cursor where you want to draw a line. Then hit one key, and FormTool will automatically draw the line.

Any Type Style.
Choose from italic, underlined, bold, bold italic, superscript, subscript and user defined styles.

Large Letters.
You can select large letters, and even oversize letters up to one inch tall.

Line Width.
Just specify single, double, or bold lines, and FormTool will draw them. You can also switch between single, double and bold lines with one keystroke.

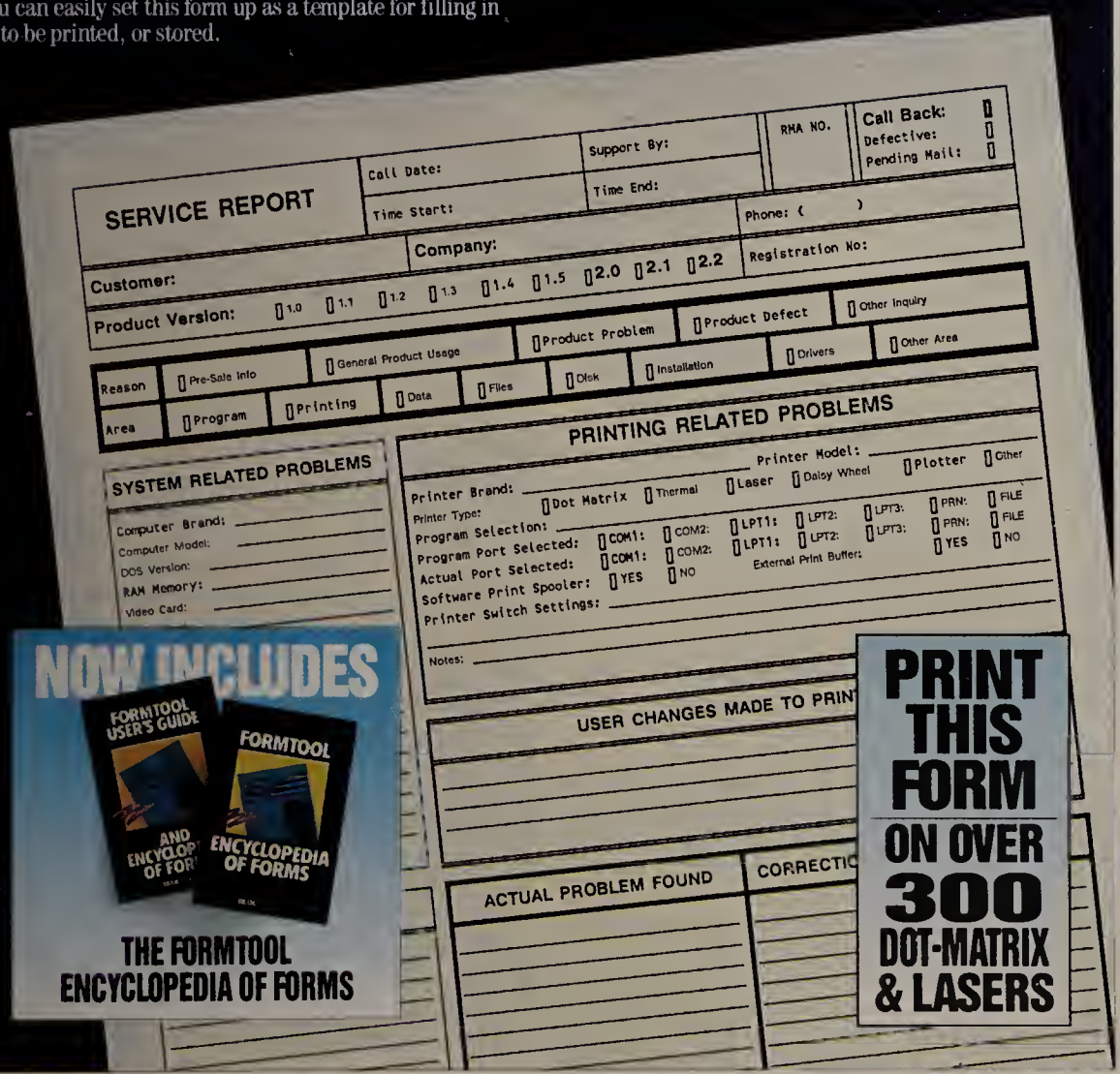
Form Fill-In & Merge.
You can easily set this form up as a template for filling in — to be printed, or stored.

Automatic Grid Drawing.
Drawing a grid is easy — just specify: column width, row height, number of columns, number of rows, or leave any out, and FormTool will automatically draw the grid based on your specifications.

Form Size.
You can select from any standard size such as letter, legal, or computer. Or, you can specify a custom size from postage stamp to 13½ inches.

Perfect Corners.
FormTool will end every line with perfect corners and T's — everytime. It will even "pipe" double lines.

Fully Supports All Attributes of Your Printer.
You can "plug in and print" over 300 dot-matrix, ink jet, thermal, letter quality and laser printers.



Enter Text Into Your Forms In Seconds.

To handle text, FormTool contains a forms-oriented word processor that allows you to move quickly through the form inserting captions, instructions, word-wrapped text and special symbols, logos and characters. FormTool will enter your text into position automatically.

An All New Forms Manager.

And FormTool Gold contains an all new Forms Manager that makes organizing, retrieving and archiving forms faster and more efficient. Includes a built-in backup and restore, the ability to instantly view forms from a list on your screen and a new set of features that allow you to "move," "copy," or "delete" forms from the Forms Manager.

FormTool's Forms Manager also includes hard disk directory support, allowing you to store forms anywhere — or you can assemble form sets in just seconds using the sleek new menu system. There's an all-new automatic "Backup and Restore," a new "View Form" feature — even an innovative directory system for fast, efficient archival.

All New PostScript Support.

FormTool now allows you to quickly print your forms on PostScript and compatible laser printers without conversion or special commands. Simply select your printer type from the configuration screen and print. You can add logos, graphics and other elements to your forms.

Display Multiple Forms In Windows!

Formtool will allow you to load up to four forms into your computer's memory for quick toggling between them, or for viewing multiple forms on the screen at one time.

While editing multiple forms, elements can be transferred from form to form. Blocks can be easily copied, replaced, moved between forms.

Form Fill-In and Merge.

FormTool's merge capability allows users to fill-in form templates, save the data, and print it out into position on the form. This data can be saved by FormTool's database for later retrieval, editing and re-printing.

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Powerful, Affordable CD-ROM Technology — Put a Wealth of Information at Your Fingertips.

The early pioneers of computing couldn't possibly have imagined it. The ability to store vast amounts of information on a tiny plastic disk, and access any bit of it on demand. Then, insert it into documents and print it — all in just seconds.

This is the magic of CD-ROM (Compact Disc-Read Only Memory) technology — and now this giant leap carries a very modest price tag. If you've got color display capabilities, you'll see dazzling graphics — in full color — right on the screen.

And when you're not using it to access information or graphics, the CDR-35 will play your audio CDs as well. Pretty versatile for such a little machine.

Introducing The NEC Intersect CDR-35 portable CD-ROM player. An amazing instrument. Weighing in at just 2.2 pounds the CDR-35 offers all the capabilities of full-size players at about half the price. And, with the purchase of the optional battery pack, the CDR-35 becomes portable, weighing only 3 pounds!

The NEC CDR-35.

Quickly connect the CDR-35 to your IBM XT, AT, PS/2 or Mac, and read both 5-inch and 3-inch CD-ROMs, and the system comes complete with cable, software and interface card.

And talk about accessing information... each CD holds up to 600 MEGABYTES (that's about 750 diskettes!) of fonts, photos and artwork. This is the most advanced system for assembling professional newsletters, brochures, layouts, comps, ads and more.

The CDR-35 incorporates a classic design. Engineered for durability and speed. It offers full-featured CD-ROM capabilities at approximately half the price of full featured CD-ROM readers.

Plus, you receive the NEC commitment to customer satisfaction, with a nationwide network of Dealers and Factory Authorized Service Centers.

The NEC Intersect CDR-72.

The Top Performer.

Improved seek times and faster data transfer rates make NEC's CD-ROM readers among the most efficient means of accessing data from CD-ROM software applications. The Intersect CDR-72 reader is fully compatible with High Sierra and Apple Macintosh HFS file formats. Plus, NEC's SSI interface adapters provide compatibility with an extensive array of computer platforms, giving you maximum versatility in systems environments.

- Multiple hardware and system compatibility including IBM XT/AT, PS/2 and 100% compatibles; SCSI compatible Macintosh computers and NEC ProSpeed/MultiSpeed laptops.
- 350 millisecond typical access time, 150KB data transfer rate and 680 MB data capacity provides top performance.

BUNDLES FROM JUST $699
INCLUDES CD-ROM PLAYER AND SOFTWARE
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See right hand page for details.

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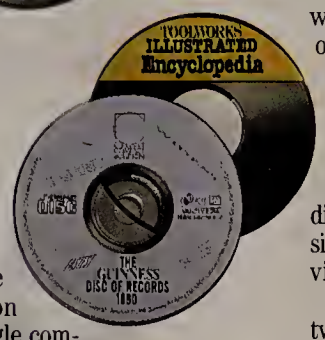

Critically acclaimed and widely used, *The Toolworks Illustrated Encyclopedia* features the entire text of a 21-volume encyclopedia (9 million words) are stored on a single compact disc. *The Toolworks Illustrated Encyclopedia* allows searches by title, word, or phrase of the latest information on science, contemporary life, law, sports, and much more.

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Find records instantly using your own search words: e.g., what record did Elizabeth Taylor break in the film Cleopatra? Browse through the color picture gallery. Learn from sections like **The Living World** or **Human Achievements.**

Choose whether to view photographs, listen to music and sound effects, or run an animation... the medium most appropriate to a particular record is used to provide you with as much information as possible... and it's all under your control.

WATCH — Animations illustrate how fast a jet flies or how tall the tallest man in the world is.
HEAR — the world's fastest backward talker.
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Atlas, almanac and world fact book in one, World Atlas gives you instant access to over 240 fully detailed, EGA/VGA color maps and a huge database of international information.

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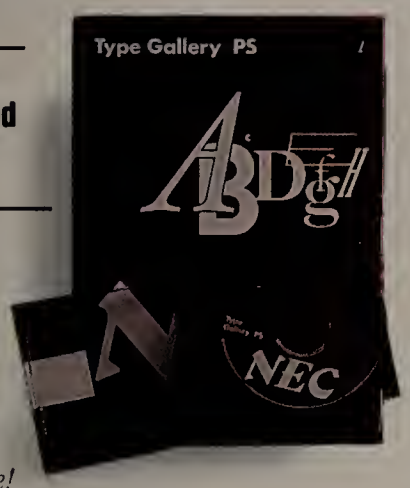
Hundreds of Typefaces, Thousands of Photos & Images.

Type Gallery™ — Available for PostScript® and HP LaserJet® Printers.

Adobe® PostScript® Language Fonts Are Just $14.66 Each.

You'll Pay $46 Each Elsewhere!



Turn your PC into a type house with the most extensive collection of typefaces available anywhere! CD-ROM technology allows you to access 600 individual typefaces on a single CD-ROM (rather than gobbling up precious space on your hard disk) and instantly use them for use in letter, reports, newletters, brochures, ads — anything you publish.

These high-quality typographic libraries are compatible with virtually all desktop publishing systems and are not imitations — they are licensed by Adobe Systems and incorporated from famous type foundries such as ITC, Linotype AG, Bigelow and Holmes, Fundicion Tipografica Neufville S.A., Kingsley/ATF Type Corporation, Letraset and others.

The Type Gallery PS disc contains all 600 Adobe PostScript language fonts. The Type Gallery LJ disc contains 76 AGFA PCL fonts which are compatible with HP (and compatible) LaserJet printers.

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Thousands of Great Photos! Ready to Use!

This remarkable volume contains over 4000 high quality digitized photos covering a long list of subjects from business and industry to nature and people. Perfect for layouts, comps and presentations, Image Folio features an ultra fast keyword search system that allows you to find the exact photo you need in just seconds.

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Type Gallery, Image Folio, Image Gallery, Photo Gallery, Clip art 3-D CD-ROMs are compatible with popular desktop publishing packages.

Image Gallery™

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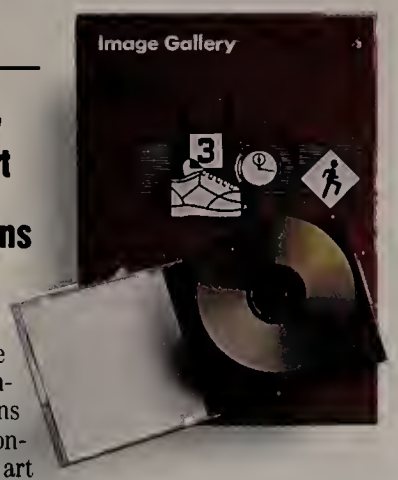

Put a full-time artist on staff! Image Gallery contains over 2800 professionally drawn line art images. Choose from 20 different categories such as Art Deco, Cartoons, Computers & Technology, Fashion, Fitness, Travel, Sports, People and more. These images are from Metro ImageBase, a leading commercial art source for over 75 years. Image Gallery's convenient index allows you to find any image in seconds, and they're ideal for use in desktop publishing applications such as PageMaker, Ready, Set, Go!, Ventura Publisher and Quark XPress.

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Adobe® PostScript® Language Fonts – Only $14.66 ea.

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76 AGFA PCL fonts ..... ea. $15.78
Total for all 76 AGFA PCL fonts **$1,199.00**
Includes FREE Image Folio & Clip Art 3-D worth **$798!**
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Total to use any 12 of 76 fonts **$299.00**

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Total to use any 600 of 2800 images **$399.00**
AY9255 **Clip Art 3-D,** 2500 color images **$399.00**
AY9260 **Photo Gallery,** 1500 stock photos **$399.00**
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AY9221 **NEC CDR-35 CD ROM Reader** $599.00
Complete Interface Kit w/cables $199.00
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TOTAL VALUE **$1097.00**

EXCLUSIVE PACKAGE Only $699.00

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AY9220 **NEC CDR-35 CD ROM Reader** $599.00
Complete Interface Kit w/cables $199.00
(Specify XT, AT, PS/2 or NEC MultiSpeed, Mac)
Type Gallery LJ, any 12 PCL fonts $299.00
And your choice of any ONE of the following:
Image Folio, 4000 color stock photos $399.00
Clip Art 3D, 2500 color graphics images . $399.00
Photo Gallery, 1500 stock photos $399.00
Image Gallery, Any 600 images $395.00
TOTAL VALUE **$1496.00**

EXCLUSIVE PACKAGE Only $997.00

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A Breakthrough Software Package. Instantly Makes Your PC Run up to 60 Times Faster!

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Results of Our FAST! vs. 386 Performance Tests...

You read the headline right — up to 60 times faster! FAST! employs advanced speed enhancement techniques and brings them to a new, sophisticated level that delivers blazing speed to any program you run. And it's simple to use — just load it and go!

A Stock IBM XT vs. a Compaq 386!

In our lab test, we matched a stock IBM PC XT, equipped with FAST!, against a stock Compaq DeskPro 386. The results were astounding — the XT outran the Compaq in a standard data transfer performance benchmark.

How Is It Possible?

FAST! incorporates the proven speed-enhancing performance of 'disk caching' and adds an innovative twist: FAST! includes a form of 'intuitive logic' that actually anticipates what data your CPU will be seeking, and reads that data from your fixed or floppy drive into a special RAM buffer (or "cache") — BEFORE the CPU asks for it!

As a result, your CPU spends virtually no time at all waiting for disk reads — an inherent logjam that slows processing time significantly.

And using FAST!, you'll notice that the more disk-intensive the application (database, for example), the more time FAST! will save — and the faster your applications will run.

And since FAST! reduces drive read time so dramatically, it also reduces wear on the disk drive — extending its life.

On a standard data transfer performance test, FAST! is 18 times faster than a standard AT — and 5 times faster than the leading competitor. In fact, and IBM XT with FAST! is faster than a Compaq DeskPro 386!

Don't Buy More Equipment!

You could spend thousands of dollars trying to achieve the speed required for truly efficient computing. Items like high-speed drives, turbo boards — even complete system upgrades try to overcome your system's inherent slowdown — waiting for disk reads.

FAST! is the only product that eliminates this processing tie-up and gives you top performance using only 8K — for $99.95. And FAST! will work with conventional, extended, or expanded RAM.

Imagine What FAST! Can Do for a 386!

FAST! will deliver spectacular results on your IBM PC, XT, AT and PS/2, but imagine how much faster the "new generation" of ultra high-speed processing technology like the Compaq 386 or Intel's 386 Above Board will run using FAST! — they instantly leap into a new computing class!

In addition, FAST! supports 'hot key' controls for instant response and installation — saving even more time and allowing you to be more productive, FAST! supports EXPANDED memory — but is not required!

Compute Smarter — Not Harder!

While eager buyers rush to purchase 386-based machines, they ignore the power already available within their current systems. Save yourself thousands — get the best from your system, without more hardware!

Our Performance Benchmark...

The technicians at TigerSoftware tested FAST! by matching it against the power of the 386.

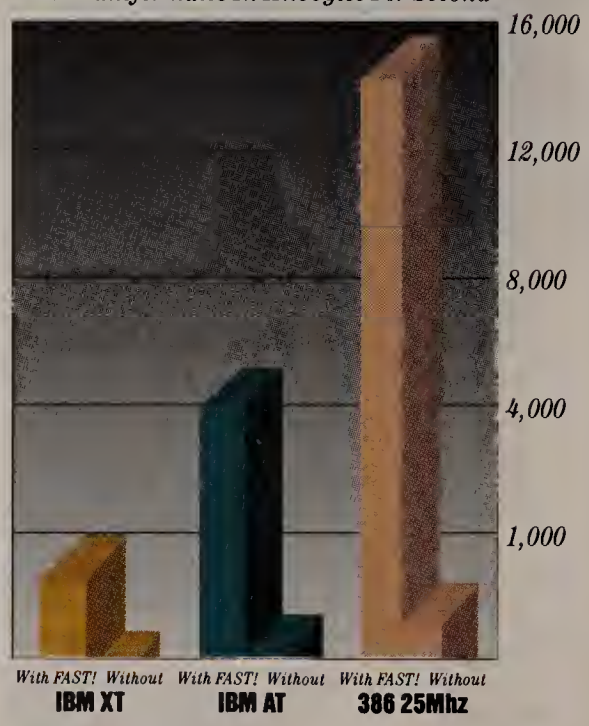
They took an ordinary XT with a 10mb hard drive and loaded FAST! Alongside it, a Compaq 386, 25Mhz speedster. The task: transferring a few megabytes in a standard performance benchmark.

The XT with FAST! outran the Compaq by over 3 seconds! Here are the results:

Data Transfer Rates In Kilobytes Per Second

With FAST! vs. Without FAST!

Data Transfer Rates In Kilobytes Per Second



What Will It Take?

...To convince you that Fast! is the intelligent answer to the problem of sluggish processing? Fast! has topped our best-seller list for 9 straight months! Hardware vendors may not want you to know about Fast!, but smart users everywhere have discovered this incredible software that turns your system into a monster!

CLOSE-UP

"Disk-Caching"

FAST! uses a RAM management technology called "intelligent caching" to eliminate downtime from the central processor's performance.

Improvements in processor technology have brought about CPU's with blazing speed; however, their real performance is limited to that of the slowest component in the system. Floppy and fixed disk drives, which have much lower data transfer rates than the central processor, are notorious for the drain they impose on the overall system performance.

FAST! works by "uploading" data into a RAM cache before the CPU calls for it. While this RAM management technique is not unique to FAST! (in fact, it's been employed by mainframe applications for years), the particular genius of FAST! is its ability to find and load significant file data rather than merely reading in sectors of data randomly. This "intelligence" is the key to why it offers performance vastly superior to other caching software products.

FAST! also represents a superior alternative to hardware upgrades like turbo boards, enhanced processors, and high-speed drives, at a fraction of their cost. Given the virtually infinite combinations of hardware configurations and applications programs, FAST! will provide different performance enhancement specific to each situation.

You'll be astonished by the improvements in your desktop publishing, word processing, and graphics software performance. You'll find that any software runs faster with FAST!, even DOS. It also eliminates wait by saving files instantly to the RAM cache, downloading to disk only at opportune times, rather than holding up processing speed. And FAST! enhances even floppy-based systems, without hard drives. There's simply no better or more cost-effective way to enhance your system's speed.

Fast!

AY 3850 FAST! 5¼" $99.95
AY 3855 FAST! 3½" $99.95

FAST! will run on the IBM PC, XT, AT, PS/2 and compatibles with 128K RAM and DOS 2.1 or greater. Supports fixed or floppy disk systems, and supports conventional, expanded or extended memory.

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Higher Postage Rates Are On The Way. Organize and Maximize Your Mailings with Fastpak Mail!

Automatically Handles
Your Customer
And Mail Lists!

Ready to use, right out of the box, FastPak Mail will print labels of any size, shape and configuration, handsome customized letters, post cards, notices, reminders and more.

You'll organize your lists in seconds, even import names from popular database applications like dBASE, for printing your letters and envelopes without re-keying the information. You'll quickly add names to your lists with sleek data entry screens and fast menu-driven operation. And FastPak Mail automatically eliminates duplicates in your lists, performs sophisticated mail merge, zip-sorting — even sorts for least cost shipping. FastPak Mail has been carefully designed to provide novice users with the ability to use it immediately, while delivering unmatched power to advanced users.

Because it contains so many advanced features and is so easy to use, FastPak Mail has become the premier mail list management software. It turns your PC into a productive mail room, while saving hundreds of dollars in wasted time, postal fees and effort. Whether you're a one-man show, or a Fortune 500 vice president, your list of associates, customers and potential customers will be instantly organized and ready to go when you need to communicate by mail.

Ready To Print Lists And Labels.

FastPak Mail will support virtually any label made — by any manufacturer. Choose from pre-defined formats available from the menu, or quickly create your own format to fit your particular needs.

Print labels 1, 2, 3 and 4 across in dozens of sizes and shapes. FastPak Mail supports all popular continuous feed label brands.

Print all of this and more... labels (any configuration), return address labels, envelopes, rotary index cards, clear adhesive labels, file folder labels, diskette labels, audio and video cassette labels, shipping labels, equipment ID labels, packing labels and dozens more. Just select the type you need from the list of built-in formats and go!

Merge Information — In Minutes.

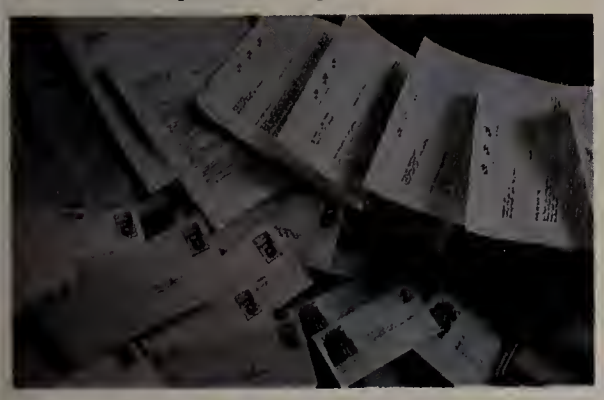
FastPak Mail will allow you to easily merge names and addresses into the body of any letter. You can quickly produce custom mailings to selected lists — even merge information into the body of your letter.

And if you have existing lists stored in other applications, they can be quickly and accurately converted for use in FastPak Mail.

Bulk Mail Sorting, Printing And Preparation.

FastPak Mail simplifies bulk mail by streamlining the entire process. All bulk mail regulations and associated labels are available from the menu, and all sorting is done to achieve the least possible cost — like 9, 5, and 3 digit zip code sorting.

FastPak Mail even produces sack labels — all you have to do is drop it off at the post office!



Addresses Express Shipping, Airbills, UPS C.O.D. Labels.

You can use FastPak Mail to finish up mailing chores by addressing Federal Express airbills, U.S. Post Office Express Mail airbills — even UPS C.O.D. labels. The pre-designed templates for these forms are available from the menu and will support virtually any printer.

FastPak Mail will also print shipping labels using a pre-defined format — or create your own.

Laser Printing Capabilities.

FastPak Mail supports all Hewlett-Packard compatible laser printers. Now everything you mail can be crisp and authoritative, taking full advantage of laser technology's broad range of fonts, sizes and formats. FastPak Mail will support all printer fonts as well as downloaded fonts — even print sideways!

Automatically Eliminates Duplicates!

With postal increases on their way in early 1991, FastPak Mail's built-in money saving features become more important than ever. FastPak Mail automatically eliminates duplicate names and addresses from your lists. In addition, FastPak Mail will always sort your mailings for the most economical rate. These features are normally found in high-end direct mail software systems with four-digit price tags!

AND OF COURSE, FREE FEDERAL EXPRESS

Software Of Choice For The Direct Mail Pro.

Communication. An enormous task for businesses of all sizes. In this, the "Information Age," the world is at our fingertips — more information is delivered to every man, woman and child in the United States (by a vast margin), than anywhere else in the world.

As a nation of consumers, we're pistol-whipped with an average of 6,000 random impressions each day — and most are advertising messages.

With this much noise, the small ad budget may seem doomed to failure before a cent is ever spent.

But that is simply not true. The direct marketing industry will top $300 billion again this year, and you can own a piece of the action without draining your budget.

However, in order to succeed as a direct marketer, you must understand the five individual elements of an effective direct mail campaign.

1. *The strategy and offer.*
Define your market, establish an average profile of your target customer. Consider how to reach him and what you will offer him.

2. *The list.*
Probably the most important. Without a good list, forget it. The goal is to deliver your offer to highly qualified buyers.

3. *The Creative.*
Design a mail piece with a letter that details your offer — compelling the reader to become involved. Typeface, color, photography, layout are absolutely critical. Avoid "overdesigned" and pieces that compete with your words. Photos should bring the words to life.

4. *Track results ruthlessly.*
Make adjustments, test, and stay with your customers. Direct mail is a science. It must be measured and evaluated constantly to obtain maximum results.

5. *Find untapped markets.*
Aggressive direct marketing involves servicing existing markets while always finding new markets. How? Keep your eyes open to trends and patterns in society. Here are a few interesting demographic facts:

- *86 percent of American parents expect their children to go to college — but only 54 percent are saving to pay for it.*
- *Americans don't move as much as they used to — only 17 percent each year today — as compared to 20% in 1960.*
- *Eating — not transportation or lodging — consumes the largest chunk of a traveller's budget in the U.S.*
- *Women control the checkbooks in 3 out of 4 American households.*
- *Women buy the majority of X-rated videocassettes.*

BLOCPublishing

AY 4550 **FastPak Mail** 5¼" & 3½" ... **$79.95**

IBM PC, XT, AT, PS/2 and compatibles with 256K. Supports hundreds of dot matrix or laser printers.

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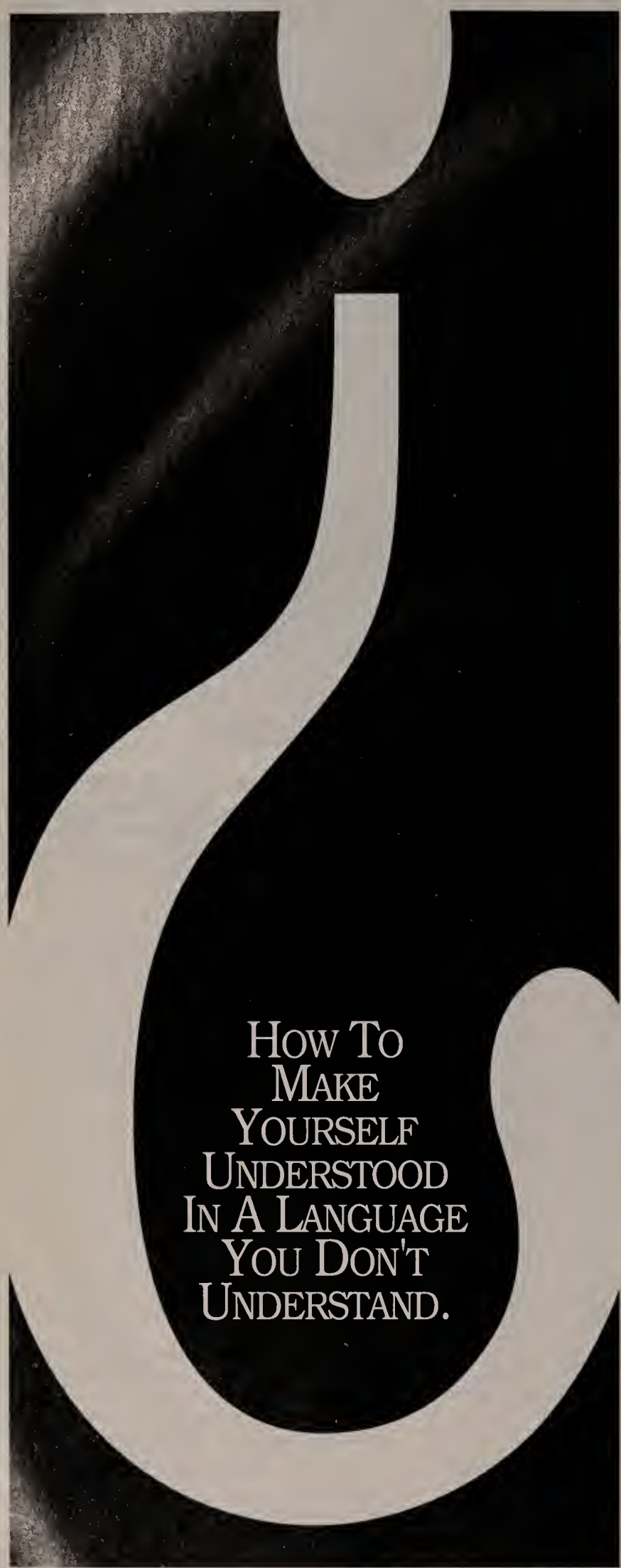

¿Habla usted español? No, you don't speak Spanish?

Then, Translate is made to order for you. It's an enormously useful tool for anyone who has to communicate in writing with America's fast-growing Spanish-speaking population.

With this revolutionary software program, you simply input your English text. Seconds later, you get a precise unadorned Spanish translation. Nuances of language, stylistic preferences, corporate jargon, and specific terminology can be easily implemented through the dictionary update function.

```
English file: ENGLISH.TXT    Spanish  file: ENGLISH.SPA    Page:   1  Line:  2

With nearly 20 million people, the Nispanic population of the United States
represents a significant market segment that has won the attention of the
business community and government.  In addition, 400 million people in
Spain and Latin America represent an enormous market potential ; many
companies seek  participation in this increasingly open world economy.

|-------------|F2-Translate|-------------------------------------------------|Ready|--|

Con casi 20 millones de gente, la población Hispánica de los Estados Unidos
representan un segmento de mercado signifioativo que ha ganado la atención
de los medios empresariales y gobierno.  Además, 400 millones de gente en
España y America Latina representa un potencial de mercado enorme; muchas
compañias buscan participación en esta economía mundial crecientemente
abierta.

F1-Help F3-Goto F4-Dict F5-Ed En F6-Ed Sp F7-Prt En F8-Prt Sp F9-Cont Esc-Exit
```

Translate utilizes an 85,000 term English-to-Spanish dictionary. Finalsoft's User Support Service will assist you in customizing the dictionary.

Other programs of this kind cost thousands of dollars; Translate is only $495.00 That's a terrific value in any language.

Call toll free: 1-800-232-8228. In Florida: (305) 477-2703, 9-6 EST. FAX: (305) 477-0680. Visa and MC accepted.

30-day money-back guarantee on direct orders. Add $5.00 shipping and handling. Florida residents add 6% Sales Tax. Free user support. Dealer inquiries welcomed. Finalsoft Corporation, 3900 N.W. 79th Ave., Suite 215, Miami, FL 33166.

"The advantages of Translate are many. This program handles translation of complete phrases — unlike other programs that function word by word.... Besides being easy to use and fast to learn, it works!"

—Winston Roberts
PCM Magazine

Translate

Breaking the language barrier.

A product of FINALSoft

See us at COMDEX/Fall '90
November 12–16, 1990
Las Vegas, Nevada
Booth # 4582

System requirements: IBM® XT® /AT®, PS/2® or compatible (8 Mhz. or higher recommended), DOS 3.0 or higher, hard disk, and 512K RAM.

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Circle 84 on reader service card

THE HELP SCREEN

PC World offers answers and advice at every level

Use the right DOS version, choose between bus and serial pointing devices, teach CHKDSK about extended partitions, send Escape codes from Word, run a WordStar macro at start-up, revisit electronic books and Windows screen blankers, and run single-user applications on a LAN.

Karl Koessel

Why Upgrade DOS?

Q. *I often read that DOS 3.2 or a later version is required to run a particular piece of software. But just how do versions differ? Is a higher-numbered version, which is obviously newer, better? Will some versions of DOS not run on, say, an 8086 machine?*

Henry Sostmann
Durham, North Carolina

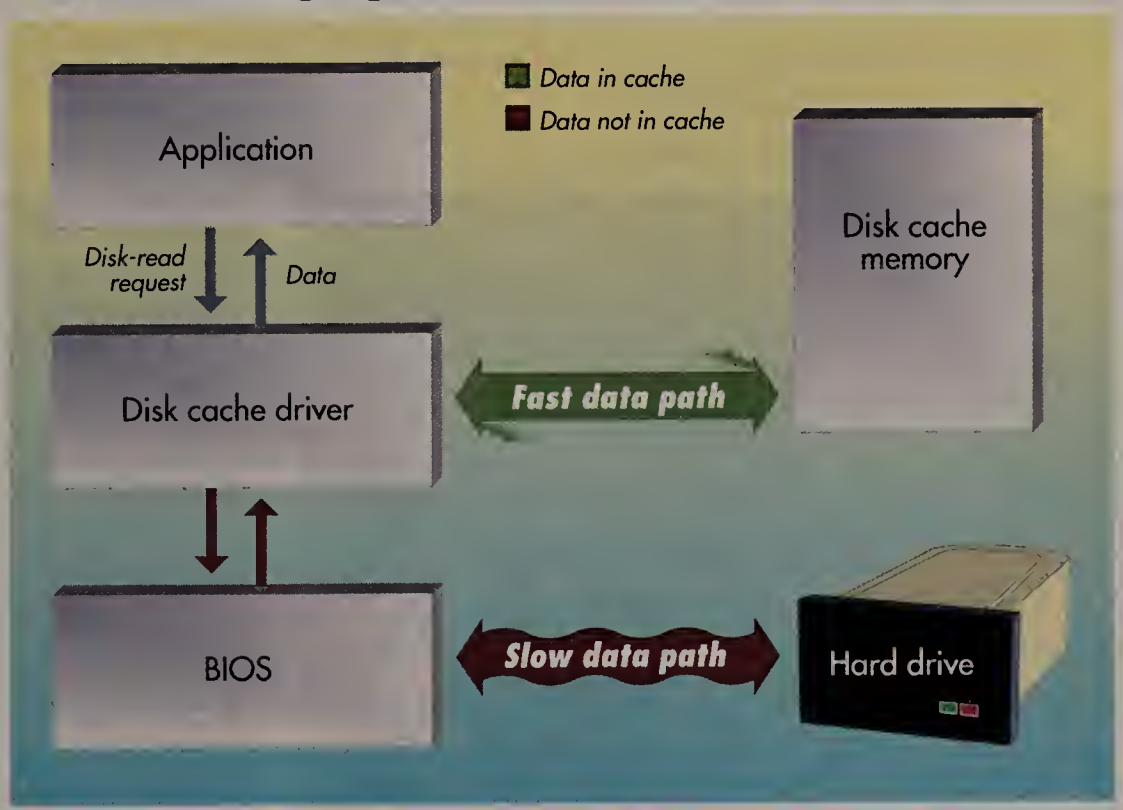
A. Each major version, except 4.0, of the IBM PC's Disk Operating System (PC-DOS) was released concurrently with an IBM personal computer and included new code and commands for new system features. Corresponding releases of Microsoft's MS-DOS to other PC manufacturers often used slightly different version numbers and sometimes included different features. Almost every upgrade has added support for a new type of floppy or hard disk and has usually included other capabilities as well, such as support for local area networks, expanded memory, and keyboards of other languages (see **TABLE 1**). Versions 4.0 and later even provide an optional DOS shell.

Although each upgrade is larger and uses more memory than the previous version, they are all backwardly compatible—if your system runs one version of DOS, it can run any later version. Which version should you use? Obviously, if your software or hardware requires a certain capability from DOS—such as the ability to use a 720K floppy disk—you must use a version that has that capability. Beyond that, ask yourself whether you want the additional features of a later version (such as 4.*x*'s DOS shell) or prefer to minimize the amount of memory used by DOS, leaving more for your applications. Perhaps the next DOS upgrade could give us more features and use less memory.

Pointer Pointer

Q. *While shopping for pointing devices, I noticed that mice and trackballs come in serial and bus versions. I (continues)*

Disk Caching Speeds Up Applications



When an application asks for data, the cache driver intercepts the request and checks for the data in the cache's memory pool. If it is there, the driver speedily supplies it to the application, eliminating a time-consuming disk read. If it isn't, the driver asks the BIOS to get the data from the hard disk, loads it into the cache (in case it's needed again), and passes it to the application.

ANTHONY RUSSO

Fight Top Databa
Out On dBAS

ADAM GREEN
President, Adam Green Seminars, Lexington, MA:

"It's significantly faster in some very important areas, especially in the fancy, attractive user interface... It's a very stable product, very reliable. I can safely recommend it."

PAT ADAMS
President, DB Unlimited, Brooklyn, NY:

"With standardization on the dBASE IV language, we have our database standard, which makes life easier for me, for my clients, and every other dBASE user... It's a solid, reliable product that performs the same way every time."

BOB DAVIES
President, SBT, Sausalito, CA:

"Memory utilization is much better than either dBASE III PLUS or dBASE IV version 1.0—a very substantial improvement. This means we are able to run our products, which require lots of memory and the need for a network, in a dBASE IV 1.1 environment."

SCOTT ROBERTSON
President, Champion Business Systems, Golden, CO:

"We think that it's solid. We think it's reliable. We think it's an excellent foundation for future development. The great thing about dBASE IV is that it has a flexible language and a good user interface. With dBASE IV version 1.1, end-users can take the product and tailor it so it fits their exact needs."

After running their own extensive tests, these independent experts have come to some very favorable conclusions on dBASE IV® version 1.1. We think you will, too.

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se Experts Speak
E IV Version 1.1.

TONY LIMA
Author of "Inside dBASE IV," President, Pacific Systems Design Workshop Inc., San Carlos, CA:

"Version 1.1 should dominate the market. Its added features make it the best development environment available for PC database products ...None of the other products have the power and ease of the dBASE IV Control Center."

HOMER BRANCH
Programmer Analyst, Chevron CEPS, New Orleans, LA:

"I'm using version 1.1 to develop applications right now...It's much easier to use than either dBASE III PLUS or 1.0... Because of the Control Center, version 1.1 allows my users to do queries and get their reports without calling me."

RICHARD BRENNER
President, Westar Systems, Colorado Springs, CO:

"I'm now taking on some major consulting jobs that I wouldn't do before dBASE IV and its multiuser capabilities...I'm excited about the way they've gone through and enhanced just about every one of the new features within the program and the programming language."

SAM GILL
President, DataWiz International, Foster City, CA:

"dBASE IV version 1.1 is significantly faster...Memory management has really been improved. We can now load and run a system very comfortably in 640K bytes...Features like the form, report and application generators allow us to cut down development time."

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TABLE 1

DOS Through the Years

Nearly every version of PC-DOS was released concurrently with the introduction of an IBM personal computer. Each new version supported the added features, such as a new type of disk drive or a larger disk format.

PC-DOS	Debuted with	Memory used (in bytes)*	MS-DOS	New drives and formats	Other features
1.0	PC-1	10,240		Full-height single-sided 160K floppy disk drive	Original IBM PC operating system
1.1	PC-2	12,400	1.25	Full-height double-sided 320K floppy disk drive	Directory entries include time of day; only PC-DOS includes DISKCOPY and DISKCOMP
2.0	XT	24,688	2.0	10MB hard drive, hierarchical file system, increased floppy disk formats to 180K (single-sided) and 360K (double-sided)	File handles, print spooling, installable device drivers, piping and redirection (|,<, >, >>), labels on disks, improved batch file language
			2.01		Some international support, Kanji
2.1	PCjr	24,688		Half-height floppy disk drives	ROM cartridges, other PCjr support, no international support
			2.11		Combines 2.01 and 2.1
3.0	AT	38,928	3.05	20MB hard drive, 2K clusters, 1.2MB floppy disk drives	Extended memory RAM disk, CMOS clock support, allows path prefix for commands; PC-DOS gains international support
3.1		38,960	3.1		PC LAN support
3.2	PC Convertible	46,000	3.2	3½-inch 720K floppy drive	Token-Ring LAN support, XCOPY command, ability to set environment size
3.3	PS/2 Models 30, 50, and 80	54,992	3.3	3½-inch 1.44MB floppy drive, multiple 32MB hard disk partitions	@ prefix suppresses display of batch command, IBM disk cache
		56,224	3.31 (Compaq)	Larger than 32MB partitions	
			4.0 (sold only in Europe)		Rudimentary network support
4.0		65,424		2GB disk partitions	EMS 4.0 expanded memory support, DOS shell
4.01		68,608	4.01		Bugs fixed

*By PC-DOS without AUTOEXEC.BAT or CONFIG.SYS.

have both a serial port and an 8/16-bit expansion slot available. What is the difference in the way serial and bus devices work? What are their advantages and disadvantages?

Steven V. Frank
Malverne, New York

A. Functionally, there's no difference between serial and bus pointing devices. The two types simply give you an installation option. A serial device is easier to install—you needn't open the system to put in a board—and it can readily be moved from one machine to another. A bus device provides an alternative if your system has no free serial port.

CHKDSK and Invalid DOS Media

Q. *I recently acquired a 40MB hard drive and had it partitioned by a hard disk management program into a small drive C: and two larger drives (D: and E:). To enable my system to recognize drives D: and E:, the dealer installed a device driver.*

I've had no real problems, but I'd like to know why I get the message 'Invalid media type' when I issue DOS's CHKDSK command for drive D: or E:. Is something wrong? My disk optimizer does its own form of CHKDSK without any problem. I'm puzzled.

Michael V. Harrison
Elkhart, Indiana

A. The device driver enables your system to use a hard drive that's not supported by its BIOS, has multiple DOS partitions, or has partitions larger than 32MB. A patch that enables CHKDSK to recognize the extended partitions (your D: and E: drives) as valid DOS media may be available from your dealer or from the vendor that makes the hard disk management program.

Although the device driver handles most software properly, some disk caching utilities (notably *Windows 3.0*'s SMARTDRV.SYS) bypass DOS and the device driver and call directly on the system BIOS. If the BIOS doesn't know how to use the drive, you run the very real risk of corrupting your valuable data. Some disk management programs can inform you whether your drive is using standard parameters (and is therefore not at risk); check your manual. If there is any doubt, stop using

(continued on page 58)

ON NOVEMBER 12, NORTON 5.0, SPINRITE II, PC TOOLS, OPTUNE AND DISK TECHNICIAN™ WILL BE OBSOLETE.

All these utilities claim to make maintaining your hard disk as easy as possible. One even claims to "do the thinking for you."

Yet, with each of these programs, you have to decide what test to run and when to run it. Which is, unfortunately, usually after a disaster has already occurred. And because of the way they test, you're forced to wait, sometimes for hours.

But on November 12, all these utilities will go the way of the dinosaur. Because that's the day new *Disk Technician Gold* arrives.

THE INSTALL-IT-AND-FORGET-IT SOLUTION TO DATA LOSS AND DISK FAILURE.

Once you install new *Disk Technician Gold*, you can forget about hard disk maintenance. Literally. Because *Disk Technician Gold* remembers for you.

A memory-resident device driver *(not* a TSR), *Disk Technician Gold* takes you no time to run at all, because it runs in the background with all your programs. You never have to worry about when to run it.

It requires less than 10K of RAM. And, unlike TSRs, it is safe and reliable.

CONTINUOUS FACTORY-STANDARD DISK TESTING AND REPAIR.

Like the original *Disk Technician*, new *Gold* uses the same rigorous soft error tests used by hard disk manufacturers in their own final quality control.

So it will find and repair problems other utilities cannot even detect. While your valuable data is still safe and readable.

No other utility software can do that: Not Norton 5.0. Not SpinRite II. Not PC Tools. Not Optune.

And *Disk Technician Gold* does it automatically. Continuously. Without any intervention on your part. It's like having a self-repairing hard disk.

But, if you want to run any of *Gold's* many powerful tests manually — or need detailed reports — have it your way! With pull-down menus and mouse support.

COMPARE FOR YOURSELF. SIDE-BY-SIDE.

Because new *Disk Technician Gold* works simultaneously with all your programs, now it's easy to compare against Norton 5.0, SpinRite II, PC Tools or Optune.

Just install *Disk Technician Gold*. Then run the other utility's most thorough test. *Disk Technician Gold* will automatically test right along with it. When the test is over, compare the utility's findings against *Disk Technician Gold's*.

That's all the evidence you'll need to retire the other utility permanently.

RUNS ON ANYTHING THAT RUNS ON DOS.

From megabytes to gigabytes, new *Disk Technician Gold* works with any size PC, or laptop hard drive running under MS, PC, or DR DOS 3.0 or higher: MFM, RLL, ARLL, SCSI, ESDI, embedded AT and IDE drives. Plus Hardcards. Translating controllers. And any size partition.

MAIN FEATURES

Memory-resident *Disk Technician Gold* does all this *continuously*, while you use all your other programs!

- ✔ Hard disk repair.
- ✔ Preventive maintenance.
- ✔ Data recovery.
- ✔ Down system prevention.
- ✔ Disk crash and hardware failure prediction.
- ✔ Automatic system diagnostics.
- ✔ Virus prevention.

And you get these powerful extras, too!

- ✔ Interleave testing and resetting.
- ✔ Defragmenting/optimizing.
- ✔ Low level formatting.
- ✔ Screen and printed reports.
- ✔ Customizable user interface.
- ✔ Pull-down menus.
- ✔ Hot keys/pop-up status screens.
- ✔ Context-sensitive help.
- ✔ Mouse compatibility.
- ✔ Runs with Windows!

SPECIAL UPGRADE OFFER FOR NORTON, SPINRITE, PC TOOLS & OPTUNE.

Now through January 31, 1991, you can upgrade to new *Disk Technician Gold* direct from the factory for just $60. Nearly $90 off the regular $149.95 price!

AND FOR *DISK TECHNICIAN* OWNERS, TOO.

Until July 1, 1991, registered owners of any *Disk Technician* version can upgrade for only $40. Over $109 off! And if you buy *Disk Technician Advanced* between October 1, 1990 and February 1, 1991, we'll upgrade you to *Gold* absolutely free!

MOVE UP TO THE GOLD STANDARD TODAY.

So why waste hours testing your hard disk with obsolete utilities (if you remember to do it, that is) when *Disk Technician Gold* does a better job automatically? Move up to the utility that sets the new standard for hard disk maintenance software. Move up to the *Gold* standard.

30 DAY RISK FREE GUARANTEE.

Yes, I want your special factory-direct offer. I must be fully satisfied with *Disk Technician Gold*, or I may return it in salable condition within 30 days for full refund (less s/h).

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or 619 274 5000 Fax 619 272 4008

Or, send this coupon with your check or VISA/MC info to Prime Solutions. Add shipping & handling (Continental USA $5.00, AK, HI, PR & Canada $10.00; all other countries $18.00). California residents, add 7¼% sales tax.

Name _____

Address _____

City _____ State _____ Zip _____

☐ Special utility upgrade **$60.00**

☐ *Disk Technician* upgrade **$40.00**

☐ *Disk Technician Advanced* upgrade ..... **FREE**
(Send proof-of-purchase from 10/1/90-2/1/91)

My utility's serial number is:

_____

☐ Send me *Gold* at its regular low price **$149.95**

Visa or MasterCard No. Exp. Date

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NETWORK Q&A

Taming Network-Hostile Applications

Steve Guengerich

Q. *We've loaded several of our programs, including 1-2-3, Ventura Publisher, and Harvard Graphics, on our NetWare server. But only one person at a time can use each program: When a second user tries to run the program, it won't start, the display is scrambled, or the workstation crashes.*

We'd also like to recover the local hard disk space wasted on storing multiple copies of a program, and our PC manager's job would be eased by having only one copy of each program to maintain. While network versions are available, the upgrade charges are prohibitive. How can we run these programs on our LAN?

Martin Hammer
Los Angeles, California

A. The first step in dealing with an uncooperative application is to discover exactly what makes it network hostile. All three products you mention have the same basic problem: They make no allowance for users' varying hardware setups and personal preferences. Let's look at how to resolve this problem for *1-2-3;* the fixes for *Ventura* and *Harvard Graphics* are similar.

1-2-3 has two configuration files: 123.SET, which contains video and printer driver information defined by Lotus's INSTALL utility, and 123.CNF, which stores user preferences (default directory, print margins, and so on) defined by the Worksheet Global Default command. When users have different preferences and hardware requirements, *1-2-3* doesn't run correctly.

Dealing with 123.SET is fairly easy. You can save multiple SET files under different names and let your users choose the appropriate one as they start the program. For instance, you could create a SET file called EGA-PJET.SET that configures *1-2-3* for a system with an EGA monitor and a PaintJet printer; users would then start *1-2-3* with the command **123 ega-pjet** (they don't have to include the SET file extension). (If they prefer to load the Lotus menu to access the PrintGraph and Translate utilities, they can use the command **lotus ega-pjet** instead.) With *1-2-3 2.2* and earlier versions, all SET files must be in the *1-2-3* program directory and should be flagged Sharable Read-Only; with release 3 and later versions, they can be in the directory from which the user starts the program.

Dealing with the 123.CNF file is trickier, since it can't be renamed and must be in the current directory. The solution: Put a custom copy of 123.CNF in each user's default *1-2-3* directory and make sure users start *1-2-3* from there. This means you must map the *1-2-3* program directory to a search drive using a MAP command in the system's (or each *1-2-3* user's) log-in script: refer to the NetWare Menu Utilities manual for details on using MAP in log-in scripts.

Some users may have trouble remembering which SET file to use, or they may forget to start *1-2-3* from their default directory. A batch file that does it for them will make their work easier:

```
c:
cd c:\joe\ssfiles
x:123 c:\joe\ssfiles\ega-pjet
```

Lansmith's *Net-Aware* utility offers an easier solution. It helps the network administrator identify a program's configuration and user preference files, then automatically substitutes alternate files via a 4K memory-resident utility loaded on the workstation. For example, if *1-2-3* tried to open the 123.CNF file in the program directory, *Net-Aware* would substitute the user's personal 123.CNF file. This is an excellent solution for LANs with diskless workstations.

Whichever method you use, be careful not to violate your software license agreements. Most software companies require you to purchase as many copies of an application as there are people who will use it simultaneously, while others insist you buy a copy for each workstation. Many vendors offer site licenses, which cover multiple users in a company for a flat fee, or network node packs, which include manuals and licenses but no disks. If you have more workstations than licenses, you can prevent illegal use with a utility like Brightwork Development's *Sitelock,* which lets you set the maximum number of simultaneous users for a program.

WHERE TO BUY

Net-Aware
Lansmith
406 Lincolnwood Pl.
Santa Barbara, CA 93110
800/522-4567, 805/687-2401 (fax)
List price: $395 per server, $495 outside United States
Reader service no. 686

Sitelock
Brightwork Development
766 Shrewsbury Ave., Bldg 2
Tinton Falls, NJ 07724
800/552-9876, 908/530-0440, 908/530-0622 (fax)
List price: $495 per server
Reader service no. 687

Steve Guengerich is editor in chief of* The NetWare Advisor *and director of communications for Business Systems Group, a Houston-based network consulting firm.

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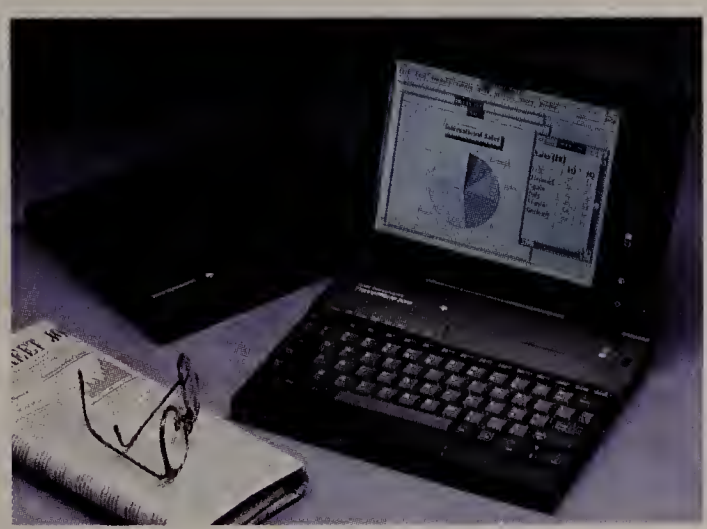

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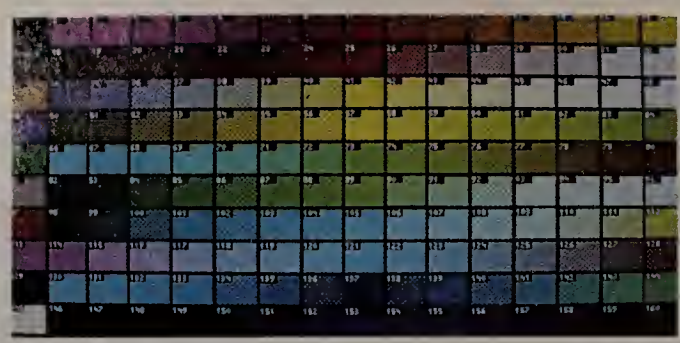
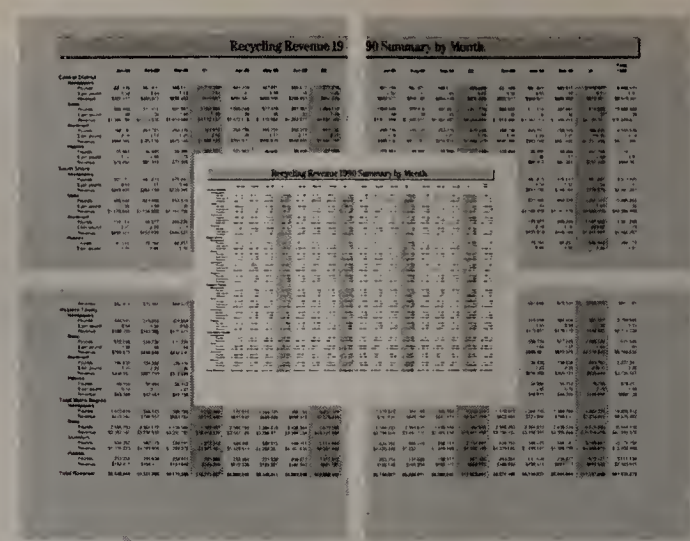
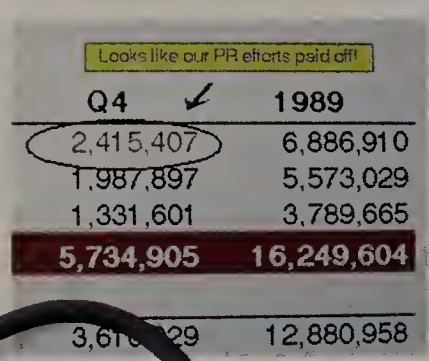




Only Release 3.1 offers an auto-compress feature that quickly reduces larger worksheets so they print on a single page.



Our Graph Editor lets you add freehand drawings or symbols to call attention to critical data.

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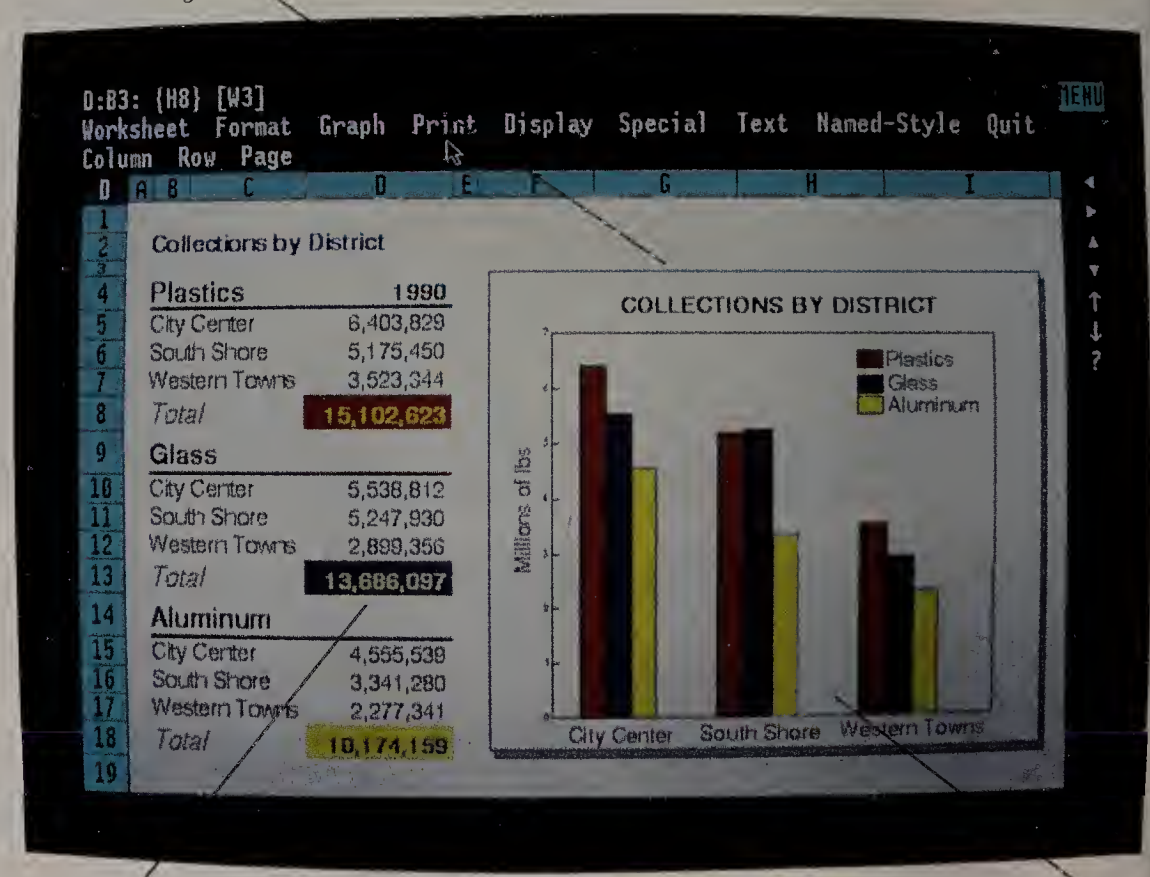

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Welcome to the world of Lotus 1-2-3 Release 3.1. Where you'll immediately discover the ease-of-use of a graphical environment, complete with mouse support and full WYSIWYG display. In fact, Release 3.1 gives you so many creative options, you'll actually find using it fun.

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But it doesn't end there. Because Release 3.1 also delivers the most impressive output imaginable. Along with the widest range of spreadsheet fo matting options available. Which means you have complete control over how you want your work to look.

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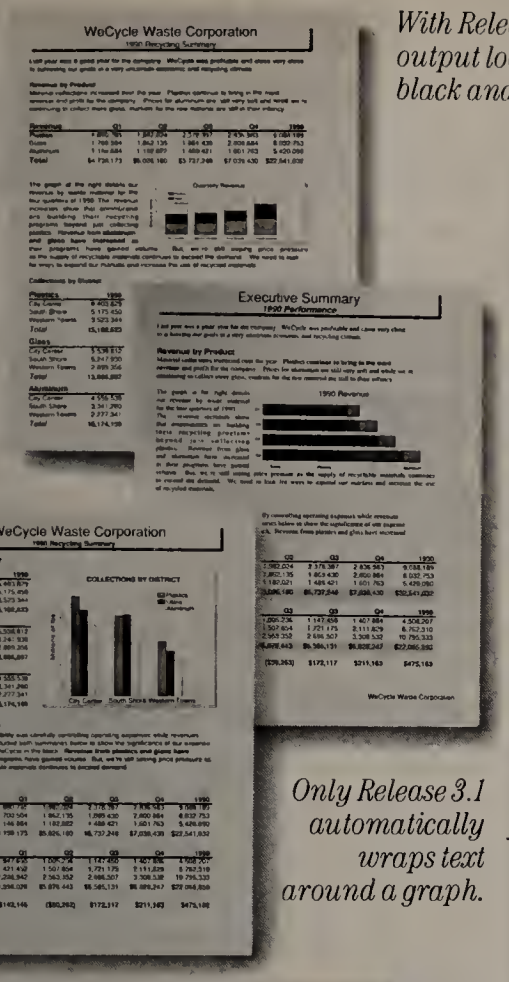


With Release 3.1 your output looks great in black and white.

Choose from 8 combinations of Bitstream® typefaces which you can scale from 3 to 72 points.

Align titles or text – left, right, even or center – with one simple command.

WeCycle Waste Corporation

1990 Recycling Summary

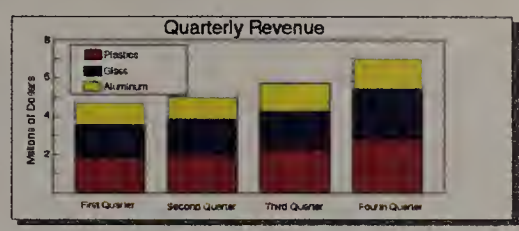
Last year was a good year for the company. WeCycle was profitable and came very close to achieving our goals in a very uncertain economic and recycling climate.

Revenue by Product

Material collections increased over the year. Plastics continue to bring in the most revenue and profit for the company. Prices for aluminum are still very soft and while we're continuing to collect more glass, markets for the raw material are still in their infancy.

Revenue	Q1	Q2	Q3	Q4	1990
Plastics	1,890,785	1,982,024	2,378,397	2,836,983	9,088,189
Glass	1,700,504	1,862,135	1,869,430	2,600,684	8,032,753
Aluminum	1,146,884	1,182,022	1,489,421	1,601,763	5,420,090
Total	$4,738,173	$5,026,180	$5,737,248	$7,039,430	$22,541,032

The graph at the right details our revenue by waste material for the four quarters of 1990. The revenue increases show that communities are building their recycling programs beyond just collecting plastics. Revenue from **aluminum and glass have increased** as their programs have gained volume. But, we're still seeing price pressure as the supply of recyclable materials continues to exceed the demand. We need to look for ways to expand our markets and increase the use of recycled materials.



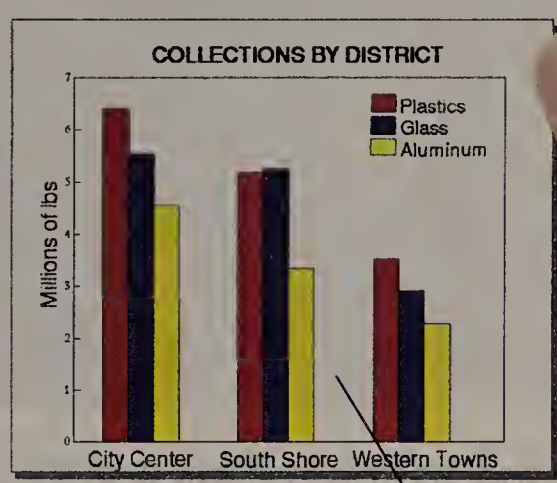
Only Release 3.1 automatically wraps text around a graph.

Collections by District

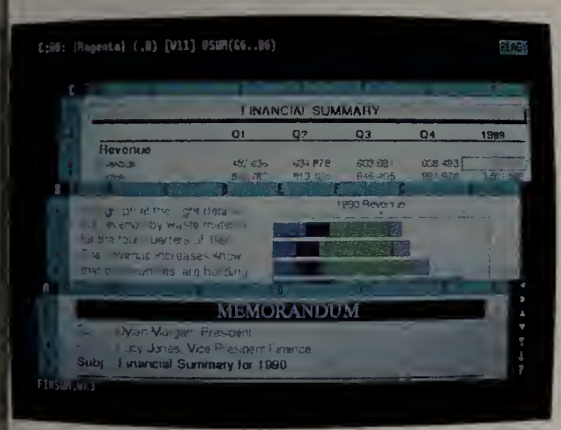
Plastics	1990
City Center	6,403,829
South Shore	5,175,450
Western Towns	3,523,344
Total	15,102,623

Glass	
City Center	5,538,812
South Shore	5,247,930
Western Towns	2,899,356
Total	13,686,097

Aluminum	
City Center	4,555,539
South Shore	3,341,280
Western Towns	2,277,341
Total	10,174,159



Release 3.1 runs in Windows 3.0. Just click the on and you're on your way.



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esigned Release 1 for PCs running ther DOS or DOS ith Windows™ 3.0. Plus, when ou purchase elease 3.1, you can count on the best and most comprehensive support in the business. Including six months of 24-hour, 7 days a week, toll-free help.*

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-hour support available in U.S. only

SMARTDRV immediately (remove the SMARTDRV.SYS line from CONFIG.SYS and reboot).

If you want to use a disk cache, ask your dealer or the vendor of the hard disk management program to recommend one that can coexist with your drive—but don't use it with *Windows 3.0* unless the vendor verifies its compatibility.

Quick Escapes From Word

Q. *How can I send an Escape sequence to my printer from within* Word? *The print menu does not offer bin selection for my printer, and I don't want to deal with* Word's *PRD (printer setup) files. I can use a BASIC program to send the necessary codes, but I'd much prefer to use something akin to* 1-2-3's *printer setup string. I only need to send three characters, ASCII 27 and 25 followed by a 1 or a 2 (ASCII 49 or 50), depending on which printer cassette bin I want to use. Any suggestions?*

Greg Albin
Littleton, Colorado

A. Many people have old, faithful printers with special features—like bin selection or compressed print—that can be activated by copying to the printer a file containing a relatively simple Escape code. *Word*'s macro facility can simplify the process by automating it.

First, open a new *Word* window and press **<Esc>to** to change to the *Word* directory (let's assume it's called C:\WORD). Hold down the **<Alt>** key, type **27** on the numeric keypad, and let go of the <Alt> key. Repeat this process for **<Alt>-<Numpad 25>**. Type **1**. Press **<Esc>ts**, type **bin1.esc**, and press **<Enter>** to save the file. Replace the '1' with a **2**, and save this file as **bin2.esc**.

Next, start *Word*'s macro recorder (**<Shift>-<F3>**), press **Esc>lr**, type **copy c:\word\bin1.esc prn**, press **<Enter>** **<Shift>-<F3>**, type **bin1**, and press **<Enter>**. (If you saved BIN1.ESC and BIN2.ESC in a drive and/or directory other than C:\WORD, replace 'c:\word' with the appropriate drive/directory prefix.) Repeat this step, substituting **bin2** for both instances of 'bin1'. Then press **<Esc>tgs** to save the macros.

Now when you want to select a printer bin while in *Word*, simply type **bin1** or **bin2**, and press **<F3>**.

Automatic WordStar Macros

July's *Help Screen* showed how to get *WordStar* to log to a different drive/directory at start-up. Reader Stanley G. Hill, Jr., of Colorado Springs, Colorado, wrote to share his method, which auto-

(continued on page 64)

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Create 30 Types of Legal Documents Quickly and Easily on Your PC.

Binding Protection For
Your Family, Your Property
And Your Business.

This brand new release contains the most complete legal software system available today, offering a fast, easy method of protecting yourself, your family and your business without hiring an attorney. Personal Law Firm combines the best-selling Personal Lawyer, Personal Lawyer Lifestyles and Personal Lawyer Business Edition into one comprehensive system.

And Personal Law Firm is simple to use. Just select the type of document you'd like to create from the menu and the system will begin asking you questions about your specific situation. Just type the answers and Personal Law Firm uses its built-in intelligence to actually "write" a binding legal document in just seconds.

PERSONAL LAW FIRM - PART ONE

Personal Law

Last Will and Testament. The importance of a personal will cannot be overstated and there are many reasons for having a will in today's society.

First is the question of what to do with your estate if something should happen to you. You have undoubtedly worked very hard to acquire the property that you have, and it would be unfortunate if it were to go to persons who you would prefer not to benefit from your estate.

Second, without some careful thought to the distribution of your estate, it is possible that it might escheat (default) to the state or federal government, resulting in higher taxes and/or fees then necessary.

Perhaps most important is to remember those persons who you care about and who care about you, and adequately provide for them.

This portion of the Personal Law Firm program permits you to designate beneficiaries of general or special gifts, specify the executor of your estate, choose a guardian(s) to care for minor children and make many other decisions for competent estate planning.

Living Will. Create a document declaring that, if you are being kept alive artificially and are so incapacitated as to not be able to make your own decisions, you prefer that the life support be terminated.

Residential Lease. This portion of the program allows you to easily write a legally binding lease for such residential property as a house, duplex, apartment or rental condominium.

Power of Attorney. This program will help you write three very useful legal documents: a General Power of Attorney, a Special Power of Attorney, and a Revocation of a Power of Attorney.

A General Power of Attorney allows the author to give general powers to a person of his or her choice; someone that you feel is capable of taking care of your affairs.A Special Power of Attorney is much like a General Power, but is limited to those powers you specify. Thus, you can give an individual the right to handle a lease, sell property, run your business, etc., without giving them the same kind of control over all of your affairs that a General Power gives.

The Revocation of Power of Attorney allows the users to revoke a power previously given. It can be used to revoke either a General or Special Power of Attorney.

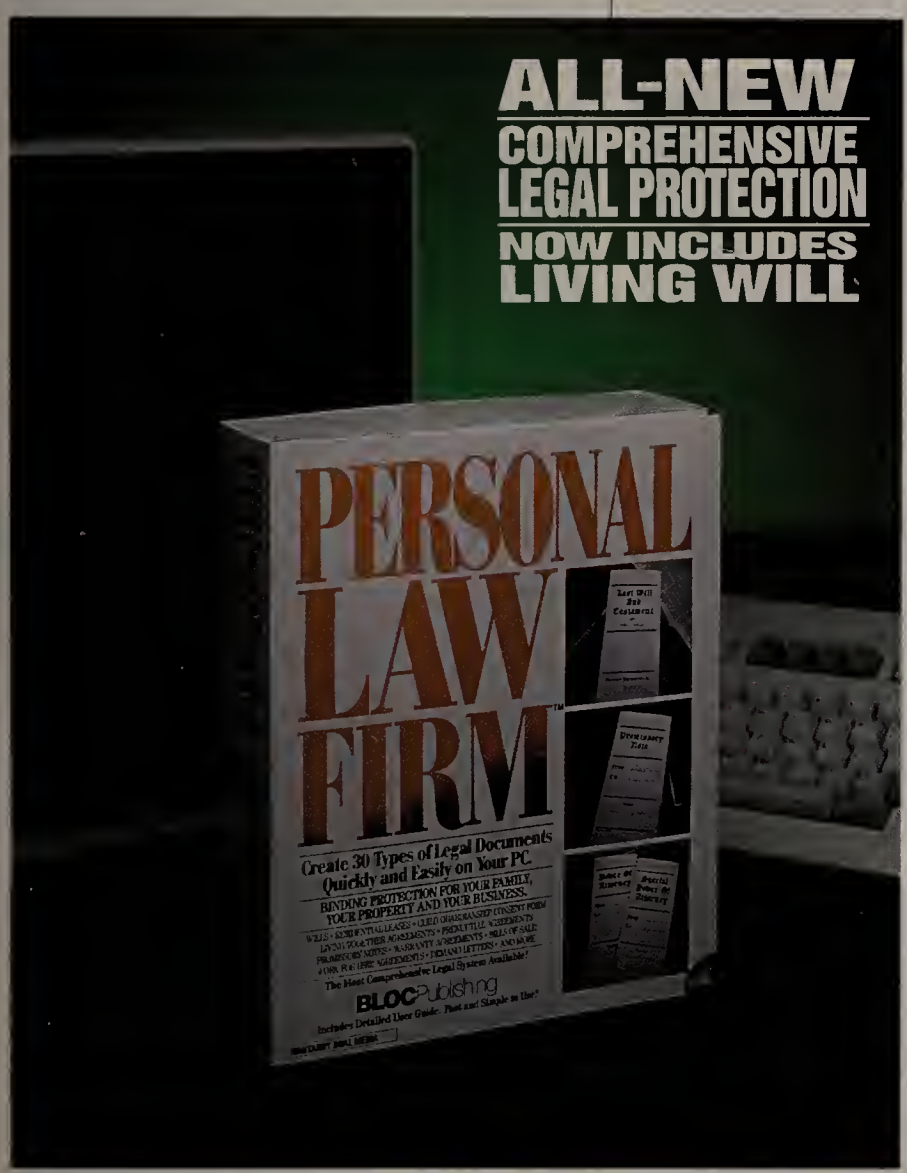
Living Together Agreements. For two persons wishing to live together, yet who are not married, this agreement contains discussions of the property owned or to be owned by each, their responsibilities, etc.

Prenuptial Agreements. This agreement is designed for two people who are going to be married and wish to write a binding contract that itemizes which property will remain their individual property and which will be owned by both parties after the marriage.

Postnuptial Agreements. This agreement is designed for couples who are currently married and living together, and will specify all of the property that they jointly have, and will specify any assets or property that they wish to remain separate.

Marital Settlement Agreements. A standard settlement agreement that will allow a couple to define child support, alimony, child custody and visitation rights upon the couple obtaining a divorce.

Child Guardianship Consent Form. This document will allow the current guardian of a child to designate a babysitter, schoolteacher, friend, neighbor or other individual the legal authority as limited caretaker or temporary guardian of a minor child or children.



Simple-to-use protection for many legal situations!

PERSONAL LAW FIRM - PART TWO

Business Law

Commercial Real Estate Lease. This lease agreement is for business or office space. Its depth does not include the complexities involved in a retail store lease, but covers everything from property damage to injury liability to late occupancy, etc., necessary for most standard business leases.

Work for Hire Agreement. This type of document can be quickly created when you enter into an agreement with a contractor, or other worker, to perform a specific job or task.

Maintenance Agreement. Maintaining your company's equipment — from copiers to robotics — involves entering into a contract with someone to make repairs in the event of a malfunction, and perhaps to provide periodic preventative maintenance.

Personal Guarantee. Allows an individual to guarantee the payback of a loan for another person or corporation that the lender feels is financially insecure.

Release of Lien. A useful document to release a lien placed on an individual's personal or real property.

Promissory Note. Provides the written ability to agree to accept a loan on certain terms and to define the payback of the loan.

Trade Secret Protection. A useful document when you are concerned about employees disclosing "Trade Secrets" during or after their employment with you.

License of Intellectual Property. Allows a licensor to give a licensee the legal right to manufacture or market a product.

Assignment of Intellectual Property. An Assignment of Intellectual Property gives the assignee (person receiving the assignment) the right to manufacture or market a specific product or products.

Bill of Sale. A Bill of Sale is used to document the transfer of personal property from a seller to a purchaser.

Security Agreement. This type of document is used to grant a lender an interest in the personal property of another individual in order to secure debt.

Warranty Agreement. A Warranty Agreement is a document describing an express warranty on a certain item of personal property.

Software Escrow Agreement. This type of document is used to safeguard the source code for a software program so that a distributor or licensor of the software will have access to it if it becomes necessary.

Letter of Offer to Purchase. When you wish to make a purchase and place your order by letter, you can quickly create a Letter of Offer to Purchase.

Demand Letter. If you have a contract or agreement with a company or individual, and they fail to perform or make payment, you can create a Demand Letter.

Rejection of Goods Letter. In the event you're shipped merchandise that does not conform, for some reason, to what you had ordered, you can quickly create a Rejection of Goods Letter that clearly states the problem.

Termination of Contract. This document is used to inform a party that you intend to end your obligations under an agreement.

Notice of Contract Breach. In the event you discover an individual with whom you have a contract has broken it, you can quickly create a Notice of Contract Breach.

Notice of Contract Assignment. A legal document used to transfer your obligations under a contract to another entity.

BLOCPublishing

AY 1150 Law Firm 5¼" & 3½" $99.95

System Requirements: IBM PC, XT, AT, PS/2 and compatibles with 256K, one floppy, a hard disk and DOS 2.1 or greater. It requires an 80-character display (color or monochrome) and will support virtually any printer.

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Circle 259 on reader service card

Avoid Hard Disk "Heart Attack."

Your Hard Disk is
A Spinning Time Bomb!

Fragmentation is Inevitable and Fatal! *Important Information on How to Protect Your Data!*

When your hard disk was new, it ran lean and swift, retrieving files in just a few seconds. But as you added programs and files, your hard disk became fat and sluggish — in fact *a fragmented, "dirty" hard disk can take up to 100 seconds to retrieve a file that used to take just 10 seconds* — THAT'S TEN TIMES SLOWER!

The problem? Fragmentation kills hard disk performance. It causes excessive head movement across the media, creating bad spots throughout the drive. It's aggravating and dangerous! A fragmented hard disk, left unmaintained, is almost certain to crash. That means major data loss. Disk Optimizer 4.0's sleek, *easy-to-use menu system* makes hard disk maintenance simple.

So, Who Needs Disk Optimizer, Anyway?

Simply everyone who owns a hard disk, and relies on the speed and convenience it gives them.

But unfortunately, DOS is doing its best to slow hard disks down — by breaking files up into pieces. Storing different chunks in different places. As a result, loading is slower. Sorting is slower. Everything takes longer because your hard disk has to chase around picking up and laying down different pieces of your file.

After un-fragmenting with Disk Optimizer, a file that once occupied 20 different sectors in 20 different locations is now back in one contiguous piece. The next time your drive reads it, there's just one place it has to look. Performance times may be cut by as much as two thirds!

Absolutely, Positively Disaster Proof.

Lately, we've heard some people are reluctant to unfragment their disks for fear they'll lose data if something goes wrong in the process. But have no fear with Disk Optimizer. Nothing will go wrong because nothing *can* go wrong. Even if you yank the plug from the wall in the middle of the program. It's because only Disk Optimizer is designed to copy each file, piece by piece, then thoroughly check the un-fragmented version for completeness and integrity. Then — and *only* then — does it go back and erase the fragmented version.

Oops! Make a simple slip at the keyboard and you could wipe out your hard disk with a DOS Format command. Don't worry — the new "Un-format" program will recover your entire disk, and all your data.

Dramatically Increases Disk Speed.

Disk Optimizer restores speed to your hard disk by eliminating fragmentation of your files and programs. Can increase speed up to 300% and minimize wear on the hard disk. Installs in seconds.

Over 250,000 users have discovered that Disk Optimizer saves time and money, while providing complete protection from hard disk errors and erasures.

Maintenance Features:

- **TrackSaver.** Protects the surface of your disk from excessive wear by preventing the head of the drive from spinning over the same track for too long.
- **Refresh.** Prevents bad spots that develop on disks due to fading magnetic charges. It's like a tune-up for your hard disk.
- **Advanced New 'Data Guardian.'** Instantly restores an accidentally deleted file, directory or hard disk — up to 255 days after it was erased! Accidentally format your hard disk? Just select Data Guardian's UNFORMAT feature and it's instantly restored!
- **Analyze.** Graphical displays show how much fragmentation has taken place on your hard disk.
- **FindFile & FilePeek.** Misplace a file? FindFile will perform a "wildcard" search with just a couple of keystrokes. Then get a "quick look" with FilePeek.

Here's How Disk Optimizer Helps You Avoid Disaster!

1. The New Hard Disk.

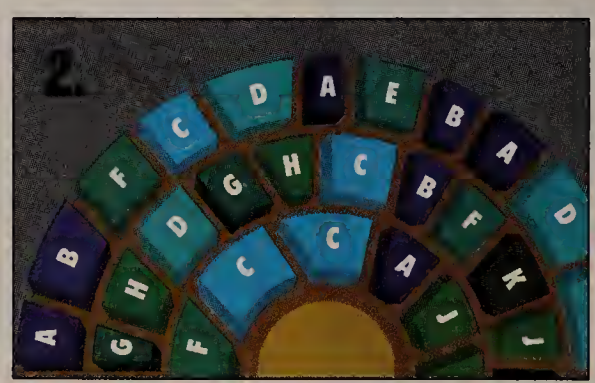
This is a brand new hard disk. As you begin to create files, they are stored on the disk randomly. Each occupies a place on the sparsely-populated disk. At this point, disk performance is at its peak. A 256K file or program can be retrieved in just a few seconds. Wear and tear on your equipment is minimal.

Under normal conditions and use, you can expect top performance from your hard disk for about 10% of its total capacity. After that, you'll notice the impact that fragmentation will have.

2. Fragmentation Begins.

As you edit these existing files, DOS will store your additional data in the same random manner. If you delete a file, a "hole" is left where that file had been stored. DOS will fill that hole with parts of other files. Fragmentation has begun. Your hard disk is running considerably slower.

More and more files are added, edited and deleted. There are pieces of your files and programs scattered all over the disk. Your hard disk's head spends more time "dragging" across the surface of the disk, endangering the media — and the data.

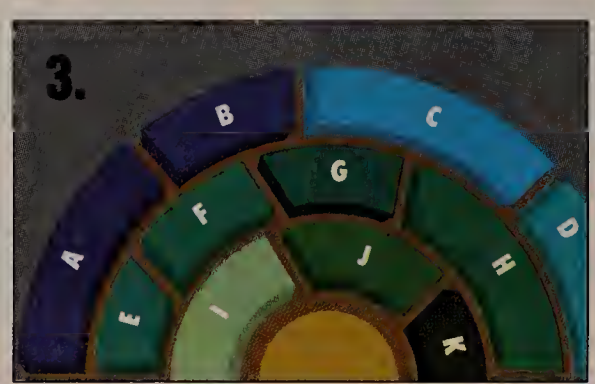


3. After Using Disk Optimizer.

Disk Optimizer assembles the pieces of your fragmented files and stores them as ONE FILE. Just a couple of keystrokes will help your hard disk run up to 300% faster! And all of your data is 100% safe.

Disk Optimizer contains "Data Guardian," — recover files and unformat accidentally formatted hard disks — plus a dozen new utility features.

Disk Optimizer actually protects the surface of your hard disk as it works, reducing the damaging effects of excessive wear on the head. In addition, Disk Optimizer helps to eliminate "bad spots" on the hard disk, and even displays the amount of fragmentation at any time.



FREE WHEN YOU BUY DISK OPTIMIZER
Cubit THE ULTIMATE FILE COMPRESSOR

Use Cubit, and a word processing file that once took up 20K now takes up as little as 10K. The archival records you use to keep on floppies now stay right on your hard drive, providing instantaneous access in a minimum of precious space.

Storage Media Compatibility.

Cubit's storage expansion capability is identical whether it's used with hard disks, floppy disks, streaming tape cassettes or standard data cassettes. Original storage capacity of media is not a factor.

Once a file is compressed with Cubit it automatically decompresses when you use it, then automatically recompresses when you're finished.

Cubit is ideal for long term archival storage.

Cubit is a $69.95 value!

TO PROTECT AND TO SERVE YOUR HARD DISK!

SOFTLOGIC SOLUTIONS

AY 3280 **Disk Optimizer 4.0** 5¼" **$69.95**
AY 3285 **Disk Optimizer 4.0** 3½" **$69.95**
Runs on IBM PC and compatibles. Supports DOS 2.1 and above.

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Open and Run Twelve Programs at Once — Just Switch Between Them! New Software Carousel Release 4.0!

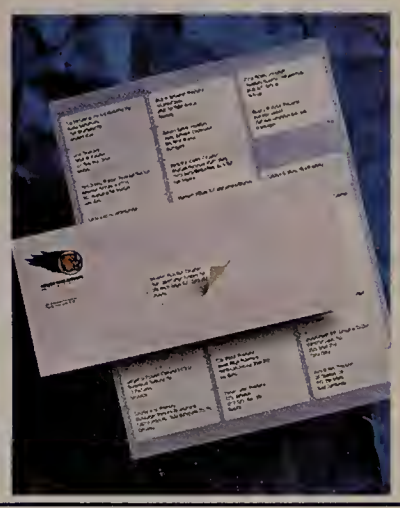
TIGER EXCLUSIVE BUNDLE!

Instantly Switch Between Up to 12 Different Programs — Software Carousel Eliminates Saving, Exiting, and Retrieving Forever!

Switch TO YOUR WORD PROCESSOR

Switch TO YOUR SPREADSHEET

Switch TO YOUR DATABASE



An All-New Software Carousel!

Imagine switching programs on your computer as quickly and easily as you change channels on your TV! No more 10 step routines just to exit one program to work in another. Just switch and you're in your spreadsheet for work on the budget, switch you're in your word processor to zip off a memo, switch over to your database to add items to your mailing list, and then just switch back to your spreadsheet — to the exact spot you left off!

Software Carousel Release 4.0 allows you to load up to 12 programs when you begin work and simply switch between them all day long, or load several sessions of the same program, each with a different file, and snap back and fourth to work on several spreadsheets, reports, letters — anything you need — all at once.

Customizable. Compatible. And Highly Economical.

Not everyone will want Software Carousel to work exactly the same. So we've included a number of convenient ways to configure Software Carousel to suit everybody's needs and tastes.

Everything from the hot-key used to switch partitions, to colors on the screen, to the way menus appear.

Now With Print 'n' Run.

With this newest feature, Software Carousel becomes something more than an outstanding task switcher.

Print 'n' Run is a proprietary print handler designed for the special requirements of the Software Carousel environment.

It works by directing printer output from any application running in a Software Carousel partition into a configurable pool of Software Carousel memory. Print 'n' Run, simultaneously sends the output to the printer as fast as the printer can take it. With Print 'n' Run, printing programs finish in just seconds. And while their printers keep running, users can go on to other tasks in the same application, or even switch to a different partition running another application. No more wasted time waiting for printers. No more lost productivity.

Makes the Most of All Your Memory.

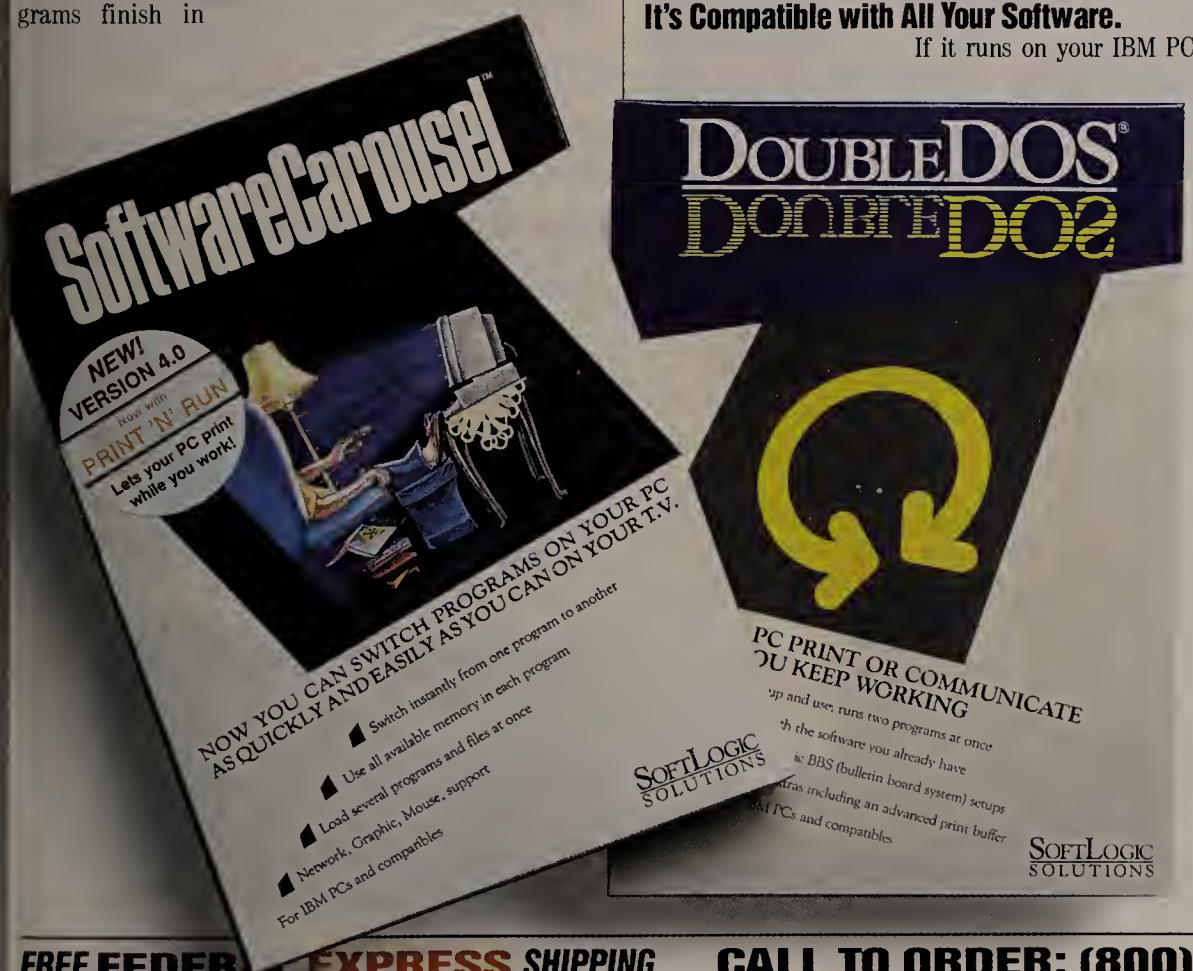
- Use all available RAM with every program, no matter how many are loaded. Move from massive spreadsheet, to giant document to huge database in a blink.
- Compatible with Graphics, Networks, Mouse, etc.
- Makes full use of expanded or extended memory boards for lightning fast program swapping.
- Occupies as little as 11K RAM.
- Switch back to the first application, and it's just like you left it. Software Carousel can swap inactive applications to *any* type of RAM, or even use disk space as RAM.

Simple to Set-Up, Even Simpler to Use.

- No complex installation required. Just type "Carousel" and load your software as usual.
- Automatically remembers your set-up and repeats it each time you start your computer.

It's Compatible with All Your Software.

If it runs on your IBM PC or compatible, it runs with Software Carousel. No modification or special files needed. No lost features or clumsy windows.



FREE BONUS DoubleDOS!

RUN YOUR PROGRAMS SIMULTANEOUSLY — *The True Multi-Tasker For Your PC!*

Quick. What happens when you finish a lengthy document in your word processor and then spell check it. Or when you print huge reports, or run data communications? *You wait.*

Why Can't I Do Two Simple Things at Once?

The reason is that the PC is designed to handle one processing task at a time. Sure, it's unproductive — but you're used to it, right? With DoubleDOS, you can actually achieve true multi-tasking. Simply, quickly and without additional hardware or reconfiguring your system. Now you can continue to work while your spell-checker does its job, go on to the next project while printing large reports and finish up a memo while running data communications or "E-mail."

It's Like Having 2 Computers Instead of Just One!

DoubleDOS is the time-proven multi-tasking program that lets you load and run two different programs at the same time — one program invisibly in the "background," while you work with the other in the "foreground."

Double your PC productivity.

Print long reports at the same time you enter data.

- Spell check one document while working on another, or in an entirely different program.
- Conduct long database search and sort routines without tying up your computer.
- Compile programs "in the back-ground" while you edit/debug code.

SOFTLOGIC SOLUTIONS

AY 3300 **Software Carousel 4.0** 5¼" **$89.95**
AY 3305 **Software Carousel 4.0** 3½" **$89.95**
IBM PC, XT, AT, PS/2 or compatibles, with 256K.

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If You Sell Your Time... Make Every Minute Count — And Account for Every Minute!

AND OF COURSE WE SHIP FREE VIA FEDERAL EXPRESS

Timeslips® III Turns Time Into Money!

If you're going to compete with the big guys, you'd better track time and money the same way they do. You got to be a little smarter, a little tougher. And a lot more careful about your time and your money.

Introducing Timeslips III, the comprehensive time and billing software designed for people like you. Individuals working at home. And small professional firms.

How Timeslips III Became the Time and Billing Software of Choice.

Timeslips III lets you record, analyze, and bill both time and expenses with ease and complete accuracy. In fact, many customers report up to a 25% increase in billable time. With an equal improvement to the bottom line. Which is the kind of performance that's made Timeslips III the most widely used time and billing software in business today.

You may not have a fancy office like the big guys, but with Timeslips III, you can start making money like them.

Timeslips III is a workhorse for worksheets, reports and graphs. You can manipulate data in dozens of ways to give you up-to-the-minute information — and take corrective action where needed.

Get a broad overview of your business, or focus in on the details.

Timeslips III Reporting Power

- **Client Financial Reports.** The Client Billing Worksheet summarizes unbilled and unposted activity for each client. Review the information that will appear on your client's bills before you send them out.
- **Aging Reports.** Gives you an analysis of client's credit-worthiness. Get a complete 30-60-90 day overdue analysis including the date, amount of last payment and client's phone number.
- **Productivity Reports.** Timeslips III can show you the productivity of each project by creating an activity-by-activity breakdown. What was accomplished by whom, how long it took, and what the actual fee was for the project when it was completed.

  By generating custom reports you can design detailed column reports from the data in your time records. For example, create a daily time sheet report that includes date, professional, client, activity, description, accumulated hours and billable amount. Your customized reports can then be printed or exported to a spreadsheet, word processor or database via a simple text file.
- **Detail Reports.** Itemize the contents of some, or all of your time records. For any number of professionals, clients and activities.
- **Summary Reports.** Show total hours and dollars, dollars per hour and percentages by employee, client or activity. Find out who is productive and who isn't. Summarize users, clients or activities for any date range.

Track and bill activities with Timeslips III in great detail. With a handy pop-up timer that records your time while you work. With custom invoices in formats you determine. And with accounts receivable reports and billing worksheets so you can keep a close watch on every minute you spend, and every dollar you have coming to you.

Track 250 activities, for as many as 250 people, working on 128 projects per client — with a maximum of 3,400 clients.

There's also an optional accessory that links Timeslips III directly to DAC Easy, Peachtree, Bedford, and many other general ledger packages. Yet, you may just find Timeslips III is the only software you need to run your books.

Simple to Use.

Everything you need to keep precise track of billable time is right at your fingertips; Timeslips III features sleek screen design of fields and elements. Entering, updating and editing of data is fast!

More Than Time Reporting and Recording, Timeslips III Provides Tools for Powerful Financial and Productivity Analysis...

- **Transaction Reports.** Lets you search quickly for payments, deposits and even create custom reports such as a daily payment register.
- **Client Fund Report.** Shows you all transactions including withdrawals, deposits and payments to and from each client's account for a complete financial analysis.
- **Thousands of Ways to Create Just the Right Bill.** Each office has its own particular needs. Each client is different. With Timeslips III, you can satisfy everyone. Create the precise billing format you need — move names and addresses to any position on your invoice, add billing phrases like "For Professional Services Rendered," or "Thanks for Your Payment." You can even create custom messages for designated clients.

Timeslips III Features:

- Detail services by activity, expense, project, or matter with complete descriptions.
- Automate your invoice preparation with convenient macros.
- Include several types of flat fees, such as absolute, minimum, maximum.
- Itemize and/or include totals for hours and expenses.
- Include dates, previous balances, aged receivables, employee initials, customized messages.

FREE Timeslips® III Speller™

Prevents Spelling Errors in Timeslips III Bills and Reports.

TSSpeller is an electronic spell-checker tailored specifically for use with *Timeslips III* time/expense-tracking and billing software. Depending on how you choose to work with it, *TSSpeller* can:

- monitor your keystrokes and report an apparent spelling error or "typo" immediately
- check a field or block of text after you finish entering it
- scan all your slips (or a subset of them) in a batch just prior to printing reports or bills.

Corrects Spelling Errors in TSTimer.

When using the exclusive "stopwatch" timer, or batch entering timesheets, Timeslips III Speller helps keep your spelling error free. If you misspell a word while typing, Timeslips III Speller automatically shows you the alternative words. Choose the correct word and resume typing. Instantly and accurately.

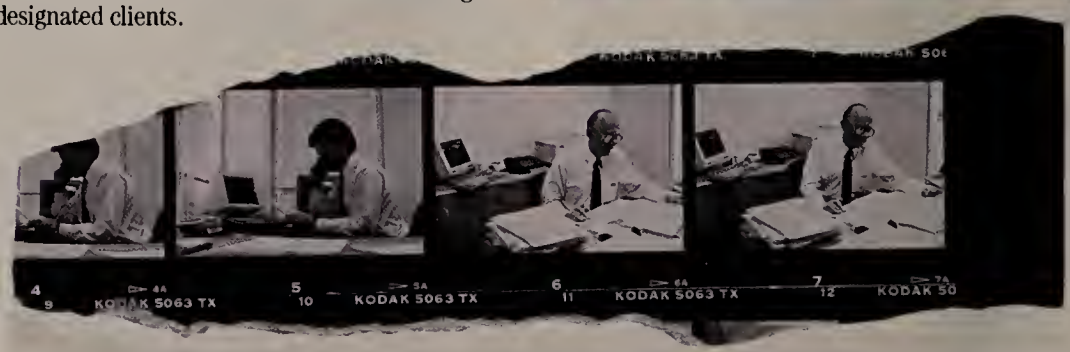
Spell Checks When Reporting.

As you print bills, Timeslips III Speller confirms the accuracy of thousands of Timeslips. And alerts you to all misspellings.

TIMESLIPS CORPORATION

AY 2600 **Timeslips III** 5¼" **$239.95**
AY 2605 **Timeslips III** 3½" **$239.95**
IBM PC, XT, AT, PS/2, compatibles with 384K.

Call (800) 888-4437 To Order.



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The Premier Grammar, Style and Punctuation Checker for the PC!

RightWriter Helps You Produce Clear, Powerful Writing.

Remember the last time you read someone else's badly written letter?

How did it reflect on him? Now ask yourself a more important question. How does your own writing reflect on you? Successful people communicate clearly... and powerfully. RightWriter is an intelligent system that flags common errors in your writing and helps you produce clean, crisp letters and proposals — applying 5,500 rules of grammar, style, usage and punctuation to letters, reports, proposals, press releases and more!

And now RightWriter is fully compatible with Microsoft Word for Windows and Q&A Write.

Works With Just a One-Word Command!

RightWriter is the most accurate system for business and technical writing. RightWriter analyzes documents produced by leading word processors for errors in grammar, style, usage, and punctuation. Using more than 5,500 rules, RightWriter helps make your writing clear, concise and powerful. Just create your documents as you normally would, then, with a one-word command, RightWriter will check your document and display errors and comments. RightWriter never changes your writing... it only makes recommendations.

A Business Productivity Tool.

RightWriter can pay for itself with a single, well-written sales letter, proposal, report, or manual. Strong, clear writing can make the difference between making or losing a sale. Good writing is good business. RightWriter is also an ideal teaching tool. As it helps you improve a document, RightWriter also trains you in the principles of proper English.

Version 4.0 Features

- *It's easier to use, because it has only one command. Your word processor does the rest.*
- *Inserts messages directly into the text to point out problem areas in letters, proposals, reports.*
- *Now runs from within WordPerfect, MultiMate, Microsoft Word, WordStar, Professional Write and Q&A Write.*
- *Indexes measure strength of delivery, readability, use of adverbs, adjectives, jargon.*
- *Uses more then 5,500 rules to make recommendations.*
- *New Menu System allows you to customize RightWriter to meet your particular needs.*

Now Runs From Within Six Major Word Processors.

RightWriter's direct interface works within the six major word processors: WordPerfect, MultiMate, Microsoft Word, WordStar, Professional Write and Q&A Write.

Specific Recommendations *RightWriter flags common writing errors such as passive voice, noun-verb agreement and more.*

Readability And Strength Index *The Readability Index shows the educational level a reader requires to understand your writing.*

Parts of Speech, Sentence Structure *Other indexes measure your adjective and adverb usage, and use of jargon. Recommendations guide you in how to improve your sentence structure.*

Words to Review *The Words In Review list points out problem words that could cause confusion.*

RightWriter vs. The Competition.

Dr. Cynthia L. Selfe, Associate Professor of the Humanities Department at Michigan Technological University independently tested the big three grammar and style checkers. The results? — RightWriter wins hands down!

Researchers at Michigan Technological University tested the three IBM PC-based grammar and style checkers. The following is an excerpt from the letter which accompanied their findings...

"We've finished our independent tests comparing the performance, accuracy and usefulness of RightWriter 3.1, Grammatik and Perfect Grammar on two separate documents: one ("Testbed") that you have sent to us and another ("Ties") that we selected independently.

As you can tell from just a quick glance at the enclosed tables, RightWriter impressed us as far as style-analysis programs go: RightWriter correctly flagged 176 errors (with a total error rate of only 8 percent) in an essay that saw more than twenty major revisions.

RightWriter has such a low error rate that the program rewards users instead of overwhelming them. RightWriter's manual was also both easier to read and more informative than either Grammatik's or Perfect Grammar's. Finally, RightWriter's problem explanations form a good refresher course in grammar and style.

We believe RightWriter would be of value to writers interested in improving the surface structure of their writing. We applaud RightSoft's attempts to test their products thoroughly and in realistic situations; your company has a couple of fans in Houghton, America.

Sincerely, Dr. Cynthia L. Selfe."

Associate Professor, Humanities Department
Michigan Technological University, Houghton, Michigan

Which Grammar Checker Would You Trust?

Results for *Test Document 1*	RightWriter	Grammatik
Total Flags*	**4124**	1290
Correct Flags*	**4065**	1118
Incorrect Flags**	**59**	172
Error Rate	**1%**	13%

Results for *Test Document 2*	RightWriter	Grammatik
Total Flags*	**201**	182
Correct Flags*	**174**	118
Incorrect Flags**	**27**	64
Error Rate	**13%**	35%

**A higher value is better. **A lower value is better.*

TEST NOTES: *Flags were identified as "incorrect" if the program suggested textual changes where none were required or each time a program flagged a compound adjective as possibly mispunctuated when the word was punctuated correctly.*

RIGHTSOFT®

AY 2860 **RightWriter** 5¼ & 3½ (Dual) **$79.95**
AY 2870 **XENIX/UNIX** **$295.00**

Runs on IBM PC, XT, AT and compatibles with 384K. Hard disk or floppy.

Call (800) 888-4437 To Order.

Compatible With These Word Processors:

Bank Street Writer®
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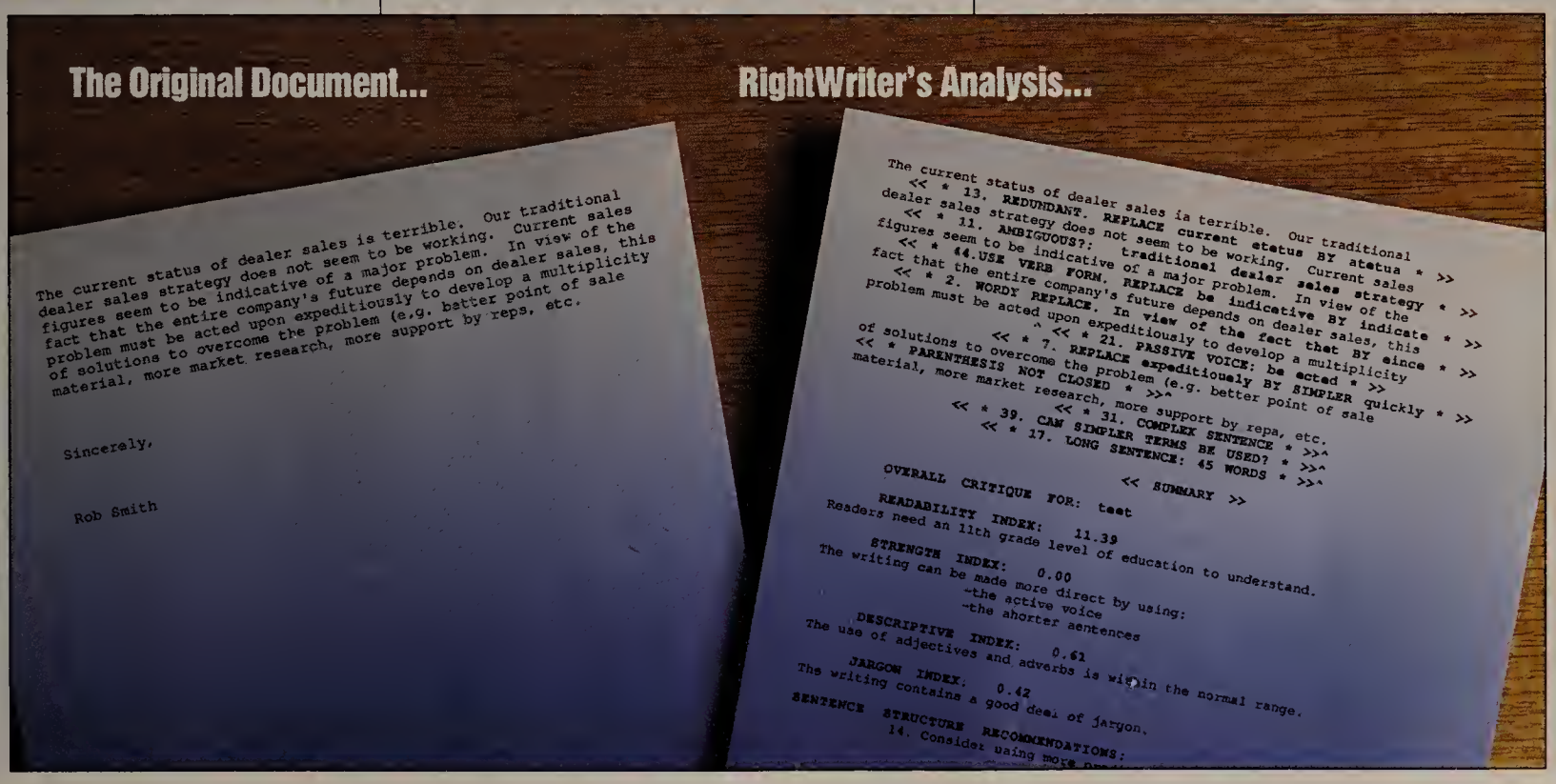

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matically lands a user in a personal directory.

For each user, Mr. Hill creates a batch file (for example, WSJIM.BAT) containing simply **WS /[** followed by a unique "Shorthand" macro name (a single alphanumeric character). That command starts *WordStar 5.0* (or a later version) and automatically executes the specified macro, in which Mr. Hill has recorded the keystrokes to log to that user's directory.

Electronic Books

After reading July's discussion of electronic books ("ASCII File Reader"), Steve Miller of BPLAN Virtuals sent me information about *Iris*, a shareware program for creating nonscrolling "virtual books." *Iris* permits bookmarking, notes, multiple chapters, and self-test textbooks and quizzes as well as page-at-a-time reading. BPLAN Virtuals publishes and distributes science fiction disk-books with *Iris*. Mr. Miller has generously offered to send two science fiction disk-books, along with an operating copy of *Iris*, for $9 plus $2 shipping and handling to readers who mention *PC World*. Write to him at BPLAN Virtuals, P.O. Box 338, Waterville, ME 04901. If you like *Iris*, its author requests only $8 for registration (the program includes registration instructions and details about *Prism*, the more powerful developer's edition).

Fireworks Changing Colors

August's column mentioned *Fireworks*, a *Windows* screen blanker from Synergistic Enterprises. That program is no longer available as shareware on the Business BBS. However, SYSOP Jim Appleby reports that his library of *Windows* shareware includes another screen blanker, *Monitor Saver* from Moon Valley Software (MS.EXE). Set your modem to N,8,1, and call the Business BBS at 213/477-0408. You can also order *Monitor Saver* for $20, plus $1.50 for shipping and handling (Arizona residents add 5 percent sales tax) directly from Moon Valley Software. Specify 5¼-inch or 3½-inch disks if ordering by mail.

WHERE TO BUY

Monitor Saver Version 2.0
Moon Valley Software Inc.
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Phoenix, AZ 85022
602/375-9502 M–F 9–4, 602/375-0531 (BBS)
Reader service no. 685

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Other manufactures with their simple-minded direct-mapped Cache atchitectures were obsessed with churing out the best benchmark numbers. We, however, were not convinced DOS and Power Meter 1.3 is any example of a typical real life application (registering at 8.003 MIPS, we are not too shabby either). With Two-Way Set Associative Cache capability, our 386™ is also more attuned to run the emerging multi-tasking operating systems like OS/2® and UNIX™, where modular code sizes (of less than 32K) and frequent code-switching are norms. Worrying about compatibility? Both IBM® and COMPAQ® endorsed the same INTEL® 82385 Cache Controller. Furthermore, we enhanced it with page-mode and interleaved memory in the event of a cache miss. It is the closest to a true 0-wait-state implementation on the market.

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Garry Ray, writing for PC Week, said, "Of these alternative operating environments (OS/2, DesqView and Software Carousel), Carousel may be the best choice of the day."

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*Open Link Extender is sold separately. †Requires NetBIOS connection.

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CONSUMER WATCH

Advice and information for the computer consumer

Readers speak out, and vendors respond to problems of failing monitors, virus-infected software, FCC certification, and more.

Roberta Furger

ANTHONY RUSSO

If the Seal's Broken, Watch Out

I purchased Microsoft's *Flight Simulator 4.0* from a local Egghead Discount Software Store. After I installed the program on my computer at home, the demonstration program ran for less than 2 minutes when my system crashed.

I worked for a few days trying to get the system up again, with no luck. I was convinced it was something I did—that the software (a shrink-wrapped Microsoft product purchased at a reputable dealer) was fine. Then I contacted some system pros on CompuServe who told me that the *Flight Simulator* file was infected with the Jerusalem B virus (it was 1808 bytes larger than it was supposed to be).

Over the next two weeks I did seven separate cycles (low-level format, repartition, reformat, and RESTORE) on my hard drive, to no avail. I had also infected my backups, because the Jerusalem B virus stays memory resident and attaches to any EXE or COM file run.

I took the infected *Flight Simulator* back to my local Egghead store, where the manager apologized, gave me credit for the return, and suggested a virus protection program, which was unable to solve "currently infected" problems. A local hardware dealer identified 12 EXE and COM files infected with the virus and suggested a program to clean them up. After one month of effort, frustration, anger, and sweat I was able to get the virus removed from memory, from the infected files, and from my backup floppies.

In the meantime, however, I have lost one month of computer use, I have lost seven critically important documents that were in the infected backups, and I have lost confidence in Egghead Software.

I do not believe Egghead Software should be aggravating the virus problem by distributing infected software. The consumer needs a software dealer who is aware of what's happening and takes steps to avoid spreading computer viruses.

Chris Edmonds
Foster City, California

Editor's note: The software Mr. Edmonds purchased had been returned by a previous customer and then re-shrink-wrapped by Egghead. According to company spokesperson John Kist, Egghead has since clarified its policy on re-shrink-wrapping software by individual dealerships. The policy, says Kist, "is not to rewrap materials where the [envelope] seal has been broken." Stores do, however, rewrap software whose outer plastic covering has been torn in shipment or otherwise damaged.

Egghead has also sent Mr. Edmonds a letter apologizing for the problem, and gift certificates totaling $750.

A word of caution to software purchasers: If the seal is broken on the envelope holding software disks or if there appears to be anything unusual about a supposedly "new" box of software, return the package to the dealer for another copy. It may save you hours of frustration and lost files down the road.

Did Software Kill a Monitor?

I have been using *PC Tools Deluxe* from Central Point Software. When I attempted to enter Compress, the screen blanked out on my monochrome monitor. After two calls to Central Point's technical support line, things were no better. In fact, my monitor sent out a high-pitched whistle, flashed, and died.

After getting many assurances that the software couldn't blow up my monitor, I gave up and removed all traces of *PC Tools Deluxe 6.0* and returned it to the seller. I then bought *Mace Utilities* and *Fastback Plus*. While they're not as pretty, they don't hold any surprises.

Is it possible that Central Point's product fried my monitor?

Jeff Price
Bradford, Massachusetts

Central Point responds: It's unfortunate that Mr. Price's monitor quit working, but we're certain this was not the result of incompatibilities between *PC Tools* and his video subsystems.

We had a problem with *PC Tools'* disk

(continues)

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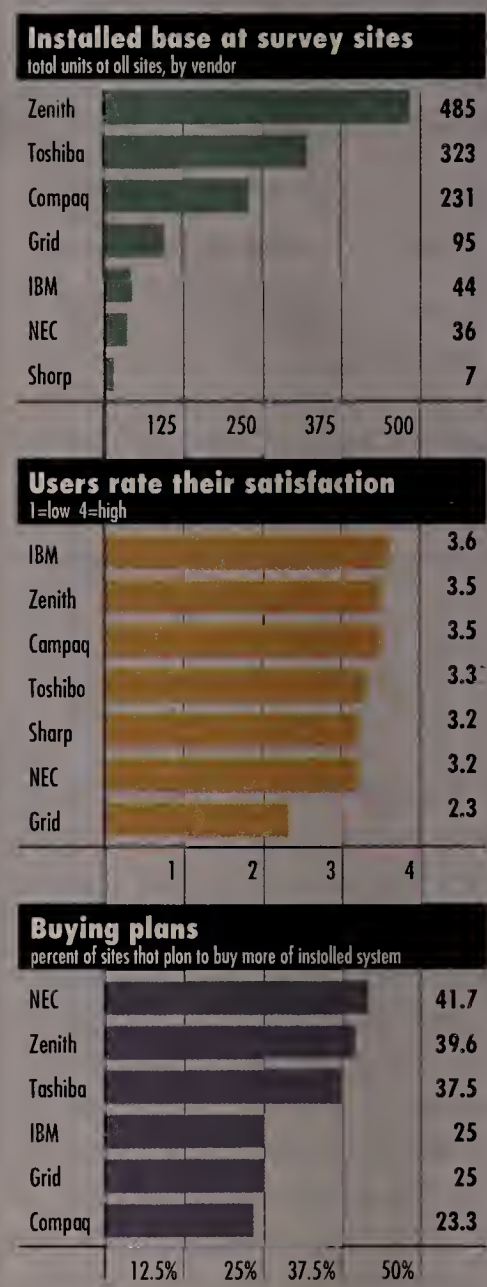
RATE YOUR SATISFACTION: Laptop and Portable PCs

Zenith and Toshiba continue to be the leading players in the laptop arena, but relative newcomer Compaq is emerging as a formidable contender, according to this IDC survey. IBM's P70 386, a transportable rather than a laptop system, scored higher in user satisfaction than any of its competitors. None of the systems scored above 50 percent in plans to buy, however, due in part to growing interest in smaller, lighter notebook computers.



Source: International Data Corporation. From a survey of 200 organizations, each with at least 50 PCs.

optimizer (Compress) blanking monochrome VGA displays. When the user ran Compress, the cursor moved down one line, but the program failed to ap-

(continued on page 74)

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- Enable OA 3.0
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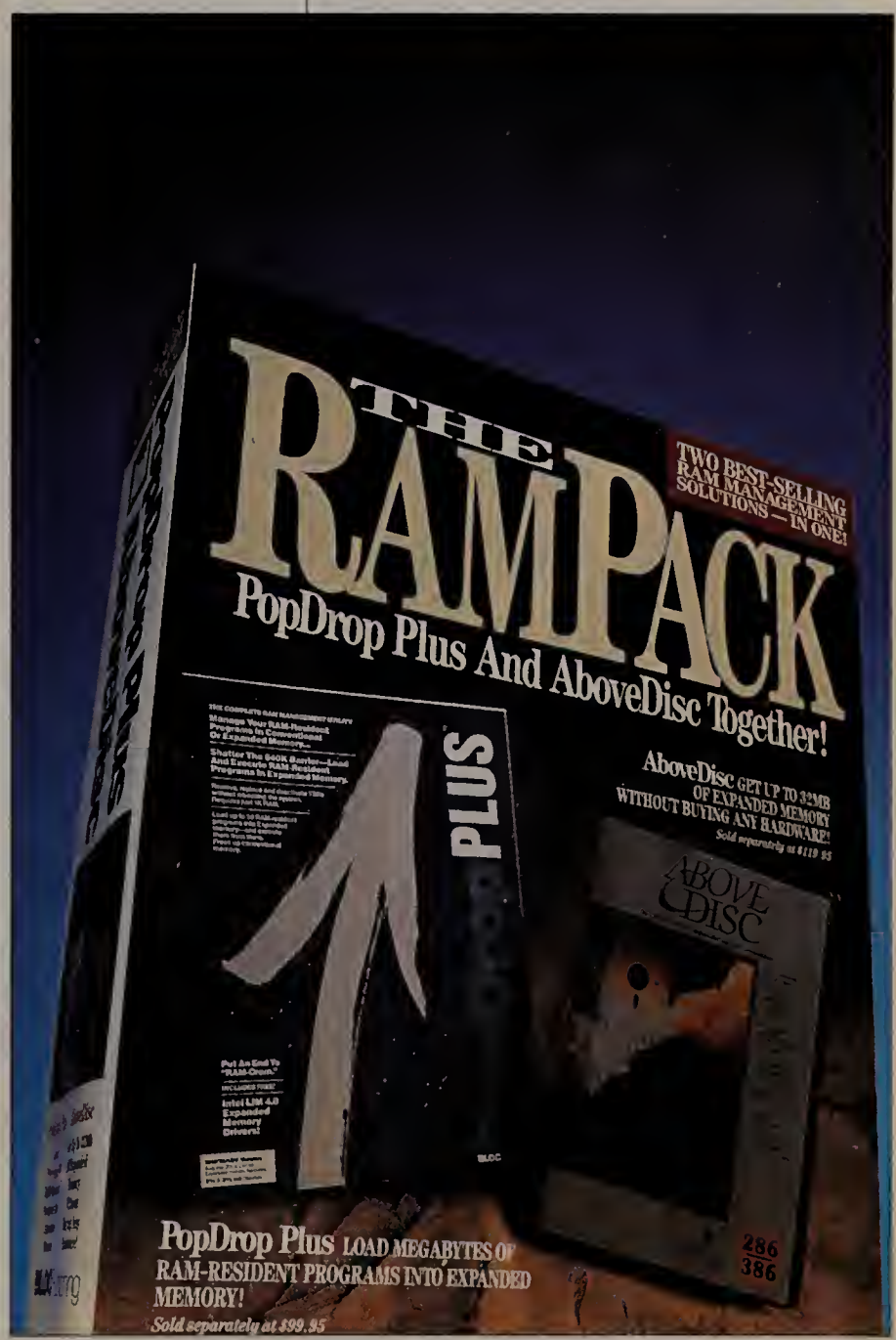

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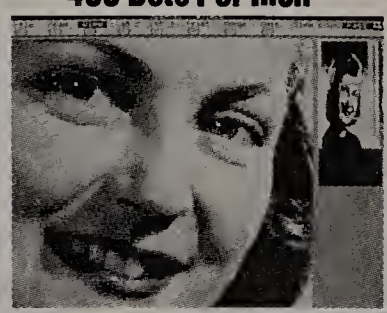

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- Provides income statements, balance sheets, and much more.
- Tracks payroll and writes payroll checks.
- Maintains accounts payable.
- Reports results by job, client, property, or department for any time period you choose.
- Helps plan cash flow by combining payables, receivables, expected payments and deposits.

► Canadian Users.

Quicken 4.0 provides Canadian tax categories and dating (D/M/Y). All Canadian financial institutions accept Quicken 4.0 cheques. (CheckFree not available in Canada.)

► Capacity Unlimited.

There's virtually no limit on the number of transactions, categories, accounts, jobs, properties or clients you can handle with Quicken 4.0. Enter up to $9,999,999.99 at a time. Split and categorize transactions up to 30 ways.

Quicken 4.0 Innovations:

Calculates True Annual Total Return.

Most products only consider the change in price of an investment, leaving out interest and dividends. Quicken 4.0 takes them all into consideration, using an Internal Rate of Return calculation. Only Quicken 4.0 gives you the "true" measurement of investment performance.

Price History.

Quicken 4.0 shows you prices of single securities over time to identify trends. Quicken also lets you scroll through historical snapshots of your entire portfolio to view its composition and value over time. Other programs just show current values.

Cost Basis Reporting.

Knowing the cost basis for investments is critical for tax records. Calculating the cost basis for investment transactions, especially for mutual funds, is extremely complex and time consuming. Quicken calculates cost basis automatically and reports all the capital gains information you need for Schedule D.

New Quicken 4.0 Features:

- Memorized reports
- Integrated CheckFree® electronic payment
- Print account balances in net worth or balance sheet format — show cents or just whole dollars
- Duplicate check number warning
- Password confirmation
- Quick back-up to hard disk
- And more

Improved Quicken 4.0 Features:

- Calculator with 8 decimal precision
- New auto-completion for faster data entry — type a few characters, and Quicken 4.0 fills in the rest
- Improved laser check printing
- Editing keys — new Home/End key functionality
- Faster transaction group use
- Expanded Help system
- And more

► The World's #1 Selling Finance Software.

Quicken 4.0 is not only the best *selling* finance software, but it has also won major industry awards, including:

PC MAGAZINE — BEST OF 1988 AND 1989
PC WORLD BEST BUY — 1989
PCResource BEST VALUE AWARDS — 1988 AND 1989
BYTE 1990 READERS' AWARDS — BEST FINANCE PRODUCT
1990 PCWORLD WORLD CLASS AWARD
INFO WORLD 1988 ACCOUNTING PRODUCT OF THE YEAR

Intuit

AY 7500 **Quicken 4.0** 5¼" & 3½" **$59.95**

System Requirements: IBM PC, XT, AT, PS/2, PS/1 or compatible, 320K RAM with DOS 2.0 or 384K RAM.

Call (800) 888-4437 To Order.

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Circle 259 on reader service card

Instantly Calculate and Analyze Mortgage Rates, Present Values, Amortization and Variable Rates...

Calculate Swift Answers to Complex Financial Questions.

This speedy financial tool allows you to quickly enter information about anything from annuities to loan balances to amortization schedules — then, using a sleek interface, PercentEdge will calculate and present a custom analysis of any specific financial transaction.

Using PercentEdge, you can quickly develop alternative structured settlements to fit your client's needs. Or instantly calculate the present value of losses or gains during periods of fluctuating interest rates. Create an unlimited number of alternative financing options for any negotiated purchase. Great for determining the smartest way to finance a house, automobile — any investment.

Once you've got the numbers, you can crunch with flexibility and superior interactivity. Like calculating multiple balloon payments, unlimited "what-if" scenarios, and comparing several scenarios — simultaneously on your screen.

PercentEdge can also be used as a personal finance tool. For instance, an individual can estimate the maximum affordable price for property, evaluate a car loan, compare financial benefits of a variety of investments, or design a savings program for a child's education.

PercentEdge is the only financial software capable of operating in two modes. Run PercentEdge as a RAM-resident program for "pop-up" convenience, or as a full application for extensive financial work.

How Much Can I ACTUALLY Afford?...

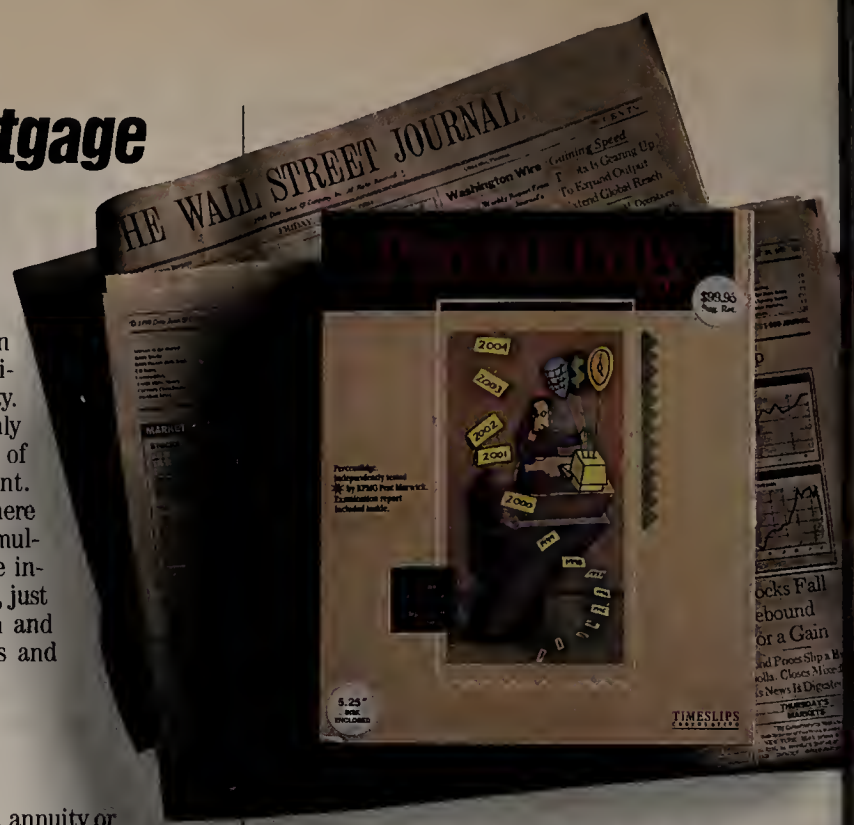
Mortgages can be tricky. Now real estate professionals, as well as first-time buyers can — in seconds — calculate the maximum affordable price of a property. Just give PercentEdge the monthly budget, the interest rate, the life of the loan and the downpayment. Bang! You'll get the number. If there are special considerations such as multiple balloon payments or variable interest rates over the life of the loan, just enter it into the Mortgage Screen and PercentEdge instantly recalculates and gives you the revised values.

Wondering About Present Values?...

Questions about a pension plan, annuity or other time/value calculation? By leaving the appropriate boxes or cells blank on the Present Value Screen, and filling in the known data, you can compute rates, dollar amounts, and dates. You'll have an accurate answer in seconds.

Easy Amortization Schedules...

The Amortization Screen shows you how a loan will be paid back over time. These calculations can be helpful in determining figures for tax returns and financial statements. It simultaneously creates an amortization table to show the outstanding principal owed, the principal paid each period, the interest of each period, and the interest to date. The amortization table can be printed directly, saved as a text file, or saved as a Lotus® formatted file for inclusion in a 1-2-3® spreadsheet.



Examined by KPMG Peat Marwick in accordance with AICPA attestation standards.

This remarkable system is in use at some of the top accounting firms in the country, as well as real estate agencies, brokers and bankers.

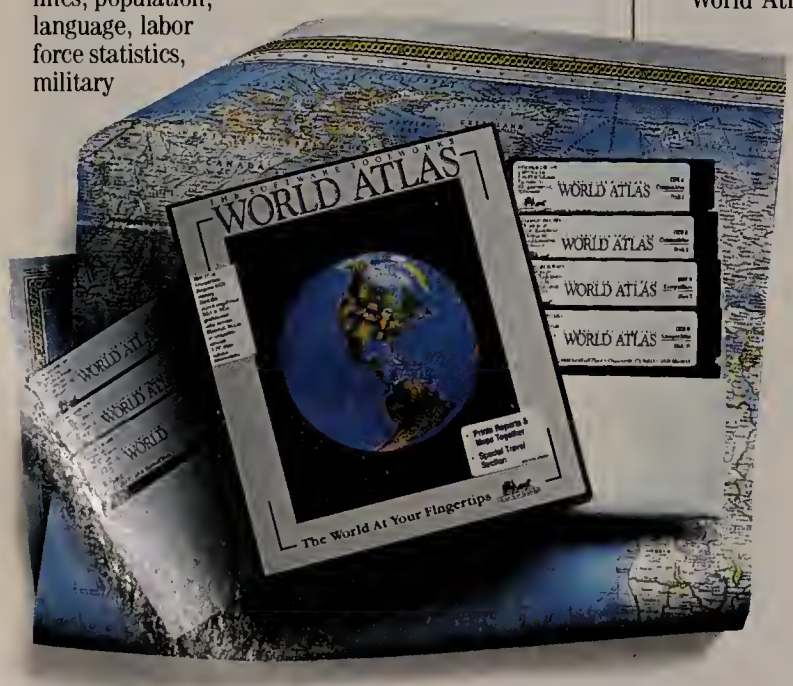
TIMESLIPS CORPORATION

AY 1240 **PercentEdge** 5¼" **$99.95**
AY 1245 **PercentEdge** 3½" **$99.95**
IBM PC, XT, AT, PS/2 or compatibles with 320K.

Dazzling Maps of the U.S. and the World — Plus Facts, Figures, Stats and More!

Bring the Entire Globe To Your PC Screen.

This innovative program brings the entire globe to your computer screen, combining a complete atlas, almanac and world fact book into one exciting, informative package. You'll have instant access to over 240 fully detailed, EGA/VGA color maps along with a vast database of useful international information. You'll explore the geography, people, government and economy of any nation on Earth, including such details as climates, coastlines, population, language, labor force statistics, military strength, inflation, industry, highways and waterways, and much more.



Indispensible Guide and Reference Tool.

World Atlas is an ideal reference tool for travelers, educators, business people, librarians and students. It's an indispensible guide that brings together all types of important information that would take months to research. With just a couple of keystrokes any bit of data is on your screen. And World Atlas includes a special travel section, containing information of particular interest to travelers that includes information on topics such as monetary conversion rates, seasonal facts and language.

World Atlas is very easy to use. You don't need to learn lengthy commands. Just point to a country on any index map, click — the desired map appears instantly. From there, simply select specific information and statistical maps for individual countries from sleek, drop-down menus. You can easily print customized reports mixing maps and text — even export maps to desktop publishing programs for use in your newsletters, reports and other publications.

World Atlas contains three types of maps: thematic, reference and regional relief maps. These maps provide a wealth of knowledge about any area you'd like to explore. There's also volumes of comparative data on every country in the world in five subject areas: geography, people, government, economy, and communications.

And all information contained in World Atlas is obtained from world organizations and U.S. Government sources for up-to-date accuracy.

NOW AVAILABLE! U.S. ATLAS

U.S. Atlas brings the entire North American continent to your computer screen! Simply click on a state, county or even a city to explore such information as: population, average temperatures/precipitation, latitude/longitude, local time, area codes and zip codes. What's more, everything your need to know will be displayed in easy-to-read windows.

All the information you could possibly want is as easy as "point-and-click." Fully-detailed, EGA/VGA maps (the kind you never thought possible on a PC!) pop up instantly. The Software Toolworks U.S. Atlas is the perfect simple-to-use almanac, atlas and U.S. fact book in ne! Great for business people, librarians, travelers and students of all ages.

Export Impressive Maps to Your Graphics Programs.

Print state reports with maps and text, graph data from your maps or rework your information with special database updating capability. Export your favorite maps to any graphics program that accepts .PCX and TIFF file formats. Add notes to map text with a special "notepad" feature.

Without a doubt, U.S. Atlas is the complete U.S. map software. It's like America at your fingertips.

THE SOFTWARE TOOLWORKS

AY 2570 **World Atlas** 5¼" & 3½" **$59.95**
AY 2560 **U.S. Atlas** 5¼" & 3½" **$49.95**
IBM PC or compatibles with 640K. Hard disk; EGA or VGA graphics card color monitor; Microsoft mouse or compatible.

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NEW! VERSION 3.0.
The Only Way to Accurately Fill-In Pre-Printed Forms Using Your PC.

PC WORLD BEST BUY

When Only a Pre-Printed Form Will Do.

The pre-printed form remains the backbone of information flow. Corporations employ hundreds of thousands of pre-printed forms to gather and distribute information internally and externally. Many of these pre-printed forms contain multiple pages, multiple parts, interleaved carbons and other devices that must be addressed when data entry is performed. More importantly, some forms include legal language, disclaimers and other important notices on the reverse side of each sheet, and may require signatures, making them, in effect, contracts.

As corporations seek a balance between paper and electronic forms, they're placing a high priority on making paper forms more efficient, reducing fill-in time, and establishing connections with their database.

While most forms are still completed by hand or using a typewriter, FormFiller allows this task to be automated using virtually any PC and printer configuration, without special hardware, graphics or dedicated printer stations. Waste, inefficiency and error, inherent in the manual fill-in of pre-printed forms, can grind the flow of information to a standstill, and cost thousands of dollars in lost time and unproductive work.

with one menu selection, retrieves them and automatically fills them into proper position in the form.

How FormFiller Works:

Step 1 — Insert The Form Into Your Printer.

The secret to FormFiller's power is its ability to tightly synchronize the computer and printer for precise positioning. You begin by creating a template for each form, matching the exact spacing, position and size for each field or blank on the form and inserting captions, help and fill-in instructions if you like.

Simply insert a sample form into the printer, with the system prompting you for alignment with your printer head. You then invoke FormFiller's "print grid" command. This actually prints vertical and horizontal lines directly on the pre-printed form, with numbers along the top and the left margin. This grid, and the corresponding numbers, are your guide in establishing the coordinates for each print position on the form.

Step 2 — Locate Precise Print Positions for Each Blank.

Using FormFiller's new menu-driven interface, the next step is to create exact print positions for each blank on the form. It's fast and simple -- just two keystrokes are required to establish a print position, defining it from starting point to ending point. And FormFiller allows you to adjust your print positions in any direction in increments of up to 1/720th of an inch for pinpoint-precise alignment. You can quickly create custom grids for complex or inconsistently spaced forms.

When the data positions have been located, FormFiller will automatically insert X's to represent characters so you can visually test alignment and inspect the spacing of the fill-in areas.

Step 3 — Preparation of the 'Master Template'.

Once the coordinates for each print position on the form have been entered, you then enhance the "master template" for the form. FormFiller allows you tremendous flexibility to custom design master templates to fit the exact needs of your information flow and accommodate your data entry requirements. This master template controls the entire data entry process.

Step 4 — Swift, Simple Data Entry.

The master template for each form is stored for instant call up and fill-in anytime. FormFiller allows data to be entered into templates using any format: columns, prompts, or into the actual form image. The data is then automatically transferred to exact blank positions on the pre-printed form.

FormFiller's Extensive Math Capabilities.

FormFiller contains dozens of math and financial functions that can be used within the form. These functions can be embedded in the form templates and automatically activated when values are entered into certain fields. This allows interactions and relationships between all fields in the form. If you're filling in a mortgage form, for example, changing one number will change all subsequent values related to that number.

Use Existing Data To Fill In Forms.

FormFiller's advanced "merge" features allow users to instantly merge database information into their pre-printed forms from spreadsheets and relational databases simultaneously.

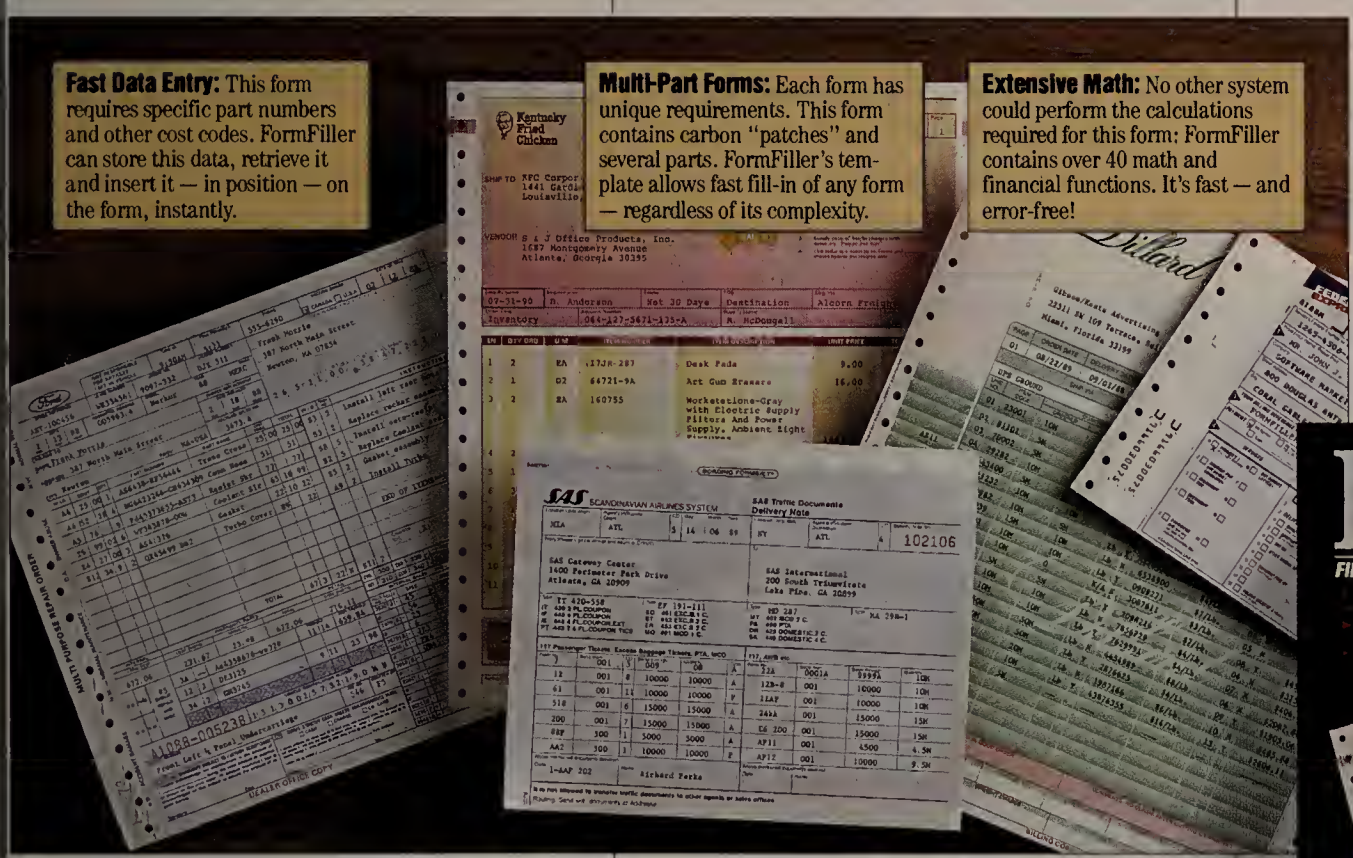
Your existing data can be quickly imported (without conversion) using FormFiller's improved new import capabilities that support dBASE II, dBASE III, Lotus 1-2-3 (WKS and WK1), DIF and ASCII.

Pinpoint-Precise Accuracy.

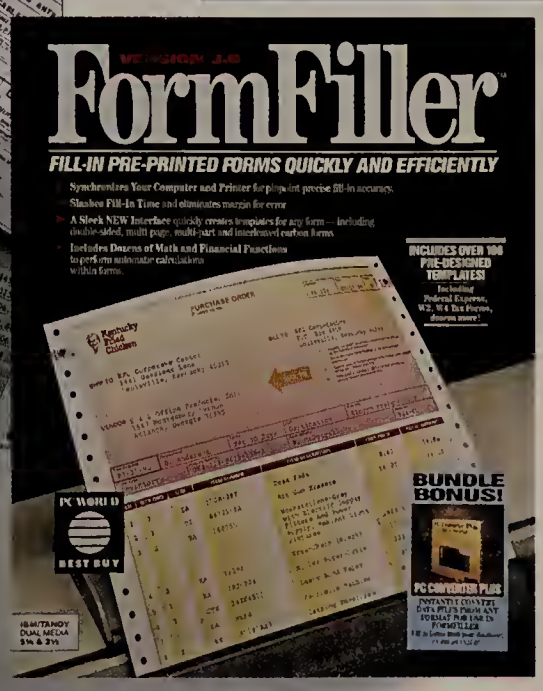
Only FormFiller can position data in precise locations on the pre-printed form, using its unique print position "Locator Grid" which actually synchronizes the computer and printer. And FormFiller allows complete control of the printer, including print quality, fonts, attributes, variable page sizes and orientation using dot-matrix, ink jet, daisy wheel or laser printers.

Automatic Look-up And Fill-in.

FormFiller streamlines data entry with its unique "look-up" feature. This powerful function eliminates data entry by providing instant access to details frequently required during fill-in. In preparing an invoice, for example, you can simply enter a part description and FormFiller automatically finds the part number, description, price — even the customer's shipping and billing address.



NEW!



FormFiller is the ideal fill-in solution for government, insurance, legal and tax forms, building permits, medical forms, shipping airbills and countless others.

FormFiller is the only system specifically designed to accurately fill-in pre-printed forms with pinpoint-precise accuracy — for up to 640 fields! It eliminates the tedious nature of form fill-in, and allows forms, regardless of their type or complexity, to be filled in with unparalleled speed, and without the margin for human error.

FormFiller's advanced mathematical and financial calculation capabilities allow you to enter values and have the system make the calculations (using dozens of built-in formula functions) automatically. These extensive math functions include percentages, exponents, depreciation, amortization, interest, present and future values — even advanced trigonometry functions.

FormFiller also includes a time-saving "Lookup" feature that stores details such as part numbers, phone numbers, shipping and billing addresses, wholesale/retail prices, claim and case numbers and more — than

BLOCPublishing

AY 8002 **FormFiller 3.0** 5¼" & 3½" **$149.00**

IBM PC, XT, AT, PS/2 or compatibles with 512K, DOS 2.0 or greater and one floppy drive and a hard disk. Supports virtually all printers. Includes "The FormFiller Sampler"— sample templates, user guide and help cards.

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pear on the screen. Users could return to the DOS prompt by pressing <Esc> and then <Enter>.

This problem, which affected only monochrome VGA systems, has been fixed. In the 50 to 60 reports about it to our technical support group, only Mr. Price complained about an actual monitor failure.

We have sent Mr. Price a free copy of *PC Tools Deluxe* should he wish to try our software again.

Other registered owners of *PC Tools* who have monochrome displays and have experienced screen blanking can obtain the upgrade by calling our customer support department at 800/888-8199. We apologize for any inconvenience this problem has caused.

Teresa Warsop
Technical Support Manager

Where's the FCC Sticker?

Last September I purchased an Elegance 386 from Northgate Computer Systems. When I first talked with a salesperson, I asked about the FCC rating of the computer. Since it was for home use, I was only interested in Class B systems, and I was told that the Elegance was Class B approved. A few weeks ago, however, I discovered that the sticker on the back says it is a Class A device.

Most of the computer companies with whom I've discussed the class rating take the attitude that it's not important —that it's just a matter of getting paperwork approved. My concern, though, is that the Class A rating may make the system harder to sell a couple of years from now.

Mary Moran
Cincinnati, Ohio

Northgate responds: The Northgate Elegance 386 computer system that Ms. Moran purchased was Class B certified at the time she purchased it. Unfortunately, we had not yet received the Class B number and stickers to apply to our systems. We have taken steps to send her the correct rating sticker.

Gary Bennett
Senior Customer Satisfaction Representative

Editor's note: Ms. Moran is correct to want and expect Class B certification for any computer used at home. A Class B device should have a sticker noting this designation, along with an FCC certification number. Ask the salesperson about FCC certification before purchasing a system. And if the PC you use at home doesn't carry Class B identification, call the manufacturer. It is illegal to sell a system for home use without the Class B rating.

Motherboard Blues

I am writing to file a complaint against Western Digital.

Earlier this year I sent a mother-

(continues on page 80)

Circle 46 on reader service card

ULTRA 96

V.32/V.42bis

X.32 (Dial X.25)

Since it was introduced four months ago, ULTRA 96 has become the fastest-selling Hayes modem ever.

Not only because the move to high-speed modems is in full swing, but because no other 9600 can deliver the features, performance, and networking capabilities of the fully loaded ULTRA 96.

ULTRA 96 provides up to 4-to-1 data compression, so it can save you money by letting you run computer equipment at its maximum speed.

In fact, you'll save so much on long-distance charges, your ULTRA 96 will pay for itself in just a few months. And its unique X.32 (Dial X.25) capability allows users to take advantage of the lower costs associated with the use of national and global packet-switched networks.

Of course, ULTRA™ works just as well on leased lines, satellite links, and other networks. It even automatically negotiates the best connection with other modems. Hayes or otherwise.

Plus, it uses the world standards for error-control and data compression, V.42 and V.42bis, and it can downshift to MNP® levels 2 through 5.

What's more, ULTRA 96 is compatible with the most popular high-speed modem on the market. The Hayes V-series® Smartmodem 9600.™

If you want to move up to the higher speeds and performance of ULTRA 96, you better order it now. Because it's going fast... even with our factory running 24 hours a day.

For more information about Hayes ULTRA 96, call 1-800-635-1225.

Hayes. *Our technology has the computer world talking. More than ever.*

At 38,400 bps, it's not only the fastest V.32 modem on the street, it's the fastest off the showroom floor.

MNP is a registered trademark of Microcom, Inc.

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THE LAP OF LUXURY.

Talk about good things falling into your lap.

Dell's first laptop—the 16 MHz 386™SX—was *PC Magazine's* Editor's Choice, and won *PC Week's* Corporate Satisfaction Poll for 386SX laptop computers.

Now we've made a faster 20 MHz model, with a new higher contrast display.

And it's only $3,899.

Which is a hefty $2,900 less than Compaq's SLT 386s/20.†

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HOURS: 6 AM-9 PM CT M-F 8 AM-4 PM CT SAT
IN CANADA, CALL 800-387-5752

In fact, it even costs less than most slower 16 MHz laptops.

How those other guys can charge so much is insane.

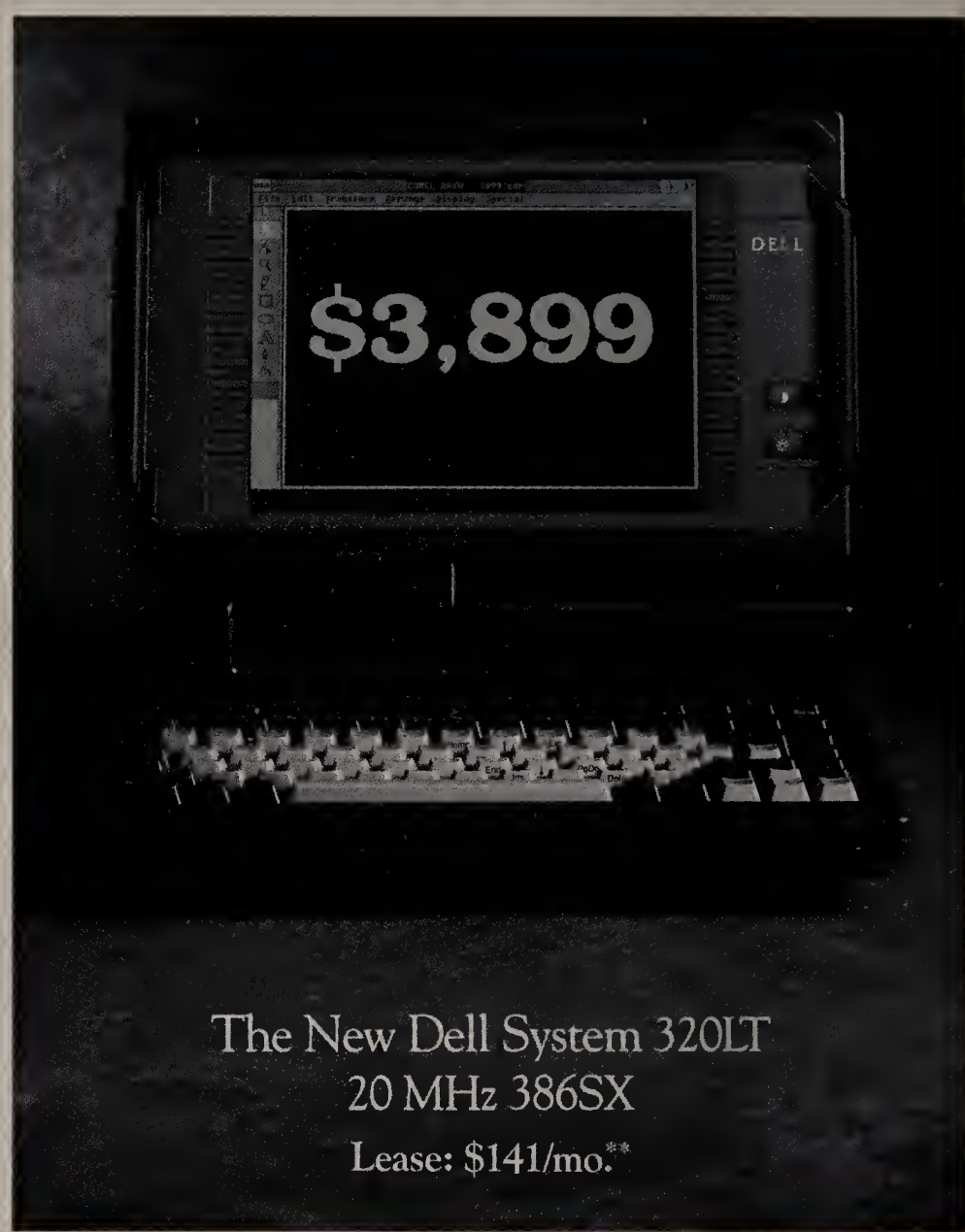
(Here's another good one: We're also cutting the price of our original 16 MHz laptop to $2,999. That should drive our competitors up the padded wall.)

It's a desktop PC trapped in the body of a laptop.

This lightweight laptop acts suspiciously like a desktop system.

With the Intel® 20 MHz 386SX microprocessor, it's as powerful as most desktops.

It's nearly as expandable, too. You get up to 8 MB



THE NEW DELL SYSTEM® 320LT 20 MHz 386SX AND THE DELL SYSTEM 316LT 16 MHz 386SX

- Intel 80386SX microprocessor running at 20 MHz (320LT) or 16 MHz (316LT).
- Standard 1 MB of RAM,* optional 2 MB of RAM expandable to 8 MB (on the system board using 1 MB SIMMS).
- LIM 4.0 support for memory over 1 MB.
- 640 x 480 VGA Liquid Crystal Display.
- One industry standard half-size 8-bit expansion slot.
- Dedicated Data/Fax modem slot.
- Socket for Intel 80387SX math coprocessor.
- 3.5" 1.44 MB diskette drive.
- 83-key keyboard with embedded numeric keypad.
- 1 parallel, 1 serial, and external VGA monitor port.
- Connector for 101-key keyboard or numeric keypad.
- Connector for external 5.25" 1.2 MB diskette drive.
- Two removable and rechargeable NiCad battery packs utilizing Dell's "Continuous Power Battery System" (patent pending).

316LT: 20 MB, 1 MB RAM $2,999
320LT: 40 MB, 2 MB RAM $3,899

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*Performance Enhancements: Within the first megabyte of memory, 128KB is reserved for use by the system to enhance performance. DELL SYSTEM is a registered trademark and Dell is a trademark of Dell Computer Corporation. Intel is a registered trademark and 386 is a trademark of Intel Corporation. †Source. Dataquest Inc. (SpecCheck Spring 1990). **Payment based on 36-month, open-end lease. Leasing arranged by Leasing Group, Inc. In Canada, configurations and price may vary. Dell cannot be responsible for errors in typography or photography. Shipping, handling and applicable sales tax are not included. Other trademarks and trade names are used to identify the entities claiming the marks and names or their products. Dell Computer Corporation disclaims any proprietary interest in trademarks and trade names other than its own. ***On-site service may not be available in certain remote locations. ©1990 Dell Computer Corporation. All rights reserved. For information on and a copy of Dell's 30-Day Total Satisfaction Guarantee, limited warranty, and Xerox's Service Contract, please write to Dell Computer Corporation, 9505 Arboretum Boulevard, Austin, Texas 78759-7299, ATTN: Warranty.

THE LAP OF LUNACY.

The Compaq SLT 386s/20
20 MHz 386SX

If you can work 24 hours a day, our laptop can work 24 hours a day. Dell's special Continuous Power Battery System lets you change batteries without losing your data, or your train of thought. The system includes two lightweight rechargeable battery packs.

The service goes where you go. If you have a question, our toll-free technical hotline solves 90% of all problems over the phone. If we can't solve it over the phone, a trained technician from Xerox will be sent to your lapside the next business day—nearly anywhere in the contiguous U.S.△

For sale, for lease, for less. When you call us, you talk with a computer expert whose sole mission is to give you exactly what you want. At a great price. We'll custom configure your laptop, give you a 30-day no questions asked money back guarantee, and a choice of leasing plans.◇

Then we'll do a configured system test, and ship it wherever you want.

Call now for either our 16 MHz or new 20 MHz 386SX laptops.

It'd be lunacy not to.

Above and beyond the call.

DELL COMPUTER CORPORATION

of RAM, a 3.5" 1.44 MB diskette drive and a 20 or 40 MB hard drive. It also has a dedicated slot for a Dell™ Data/Fax modem, and a separate slot for a standard half-length expansion card. (On a Compaq, that expansion slot would cost you an extra $1,000).

When it's time to stay put, you can connect our laptop to an external VGA monitor and keyboard, a 5.25" external floppy disk drive, and even to your network or mainframe.

Circle 318 on reader service card

"Overkill."

That's the kind word *PC Week* used to describe our service.

It came up when Dell™ computers won their first *PC Week* Corporate Satisfaction Poll for PCs, and our service beat the daylights out of everybody else's.

Now that we've won eight out of eight *PC Week* polls, it's even more appropriate. Because each time, our service is called vastly superior. While the service provided by

WHAT SERVICE!

most of our competition is often called "non-existent."

Actually, one of the nice things about our service is that you'll rarely need it. Another poll category we dominate is the one called "reliability"—due in no small measure to our testing on each machine as it goes out the door.

You shouldn't have to go through some Compaq dealer. It's better for you to talk directly to the manufacturer. So we've made it easy to call us direct. We have a staff of technical people trained at Dell who solve over 90% of the problems over the phone, generally in under 5 minutes.

And we're open when you're open. Our normal hotline hours are from 6am to 9pm Central Time, Monday through Friday. On Saturdays, from 8am to 4pm Central Time.

PC WEEK POLL OF CORPORATE SATISFACTION JULY 30, 1990

20MHz 386-BASED LAN SERVERS	OVERALL WEIGHTED SCORE
Dell	1
AST	2
IBM	3
3Com	4

PC WEEK POLL OF CORPORATE SATISFACTION FEBRUARY 5, 1990

25MHz 386-BASED PCs	OVERALL WEIGHTED SCORE
Dell	1
HP	2
AST	

PC WEEK POLL OF CORPORATE SATISFACTION JULY 16, 1990

16MHz 386SX Laptop	OVERALL WEIGHTED SCORE
Dell	1
Toshiba	2
Zenith	

PC WEEK POLL OF CORPORATE SATISFACTION APRIL 10, 1989

20MHz 80386-BASED PCs	OVERALL WEIGHTED SCORE
Dell	1
AST	2
Compaq	2
HP	4
	5

PC WEEK POLL OF CORPORATE SATISFACTION APRIL 17, 1989

80286-BASED PCs	OVERALL WEIGHTED SCORE
Dell	1
CompuAdd	2
Acer	3
Compaq	4
HP	4

PC WEEK POLL OF CORPORATE SATISFACTION FEBRUARY 12, 1990

16MHz 386SX-BASED PCs	OVERALL WEIGHTED SCORE
Dell	1
Compaq	2
Everex	2
IBM	4

286-BASED PCs: Dell, AST, Compaq, Zenith, IBM

Here's Why Our Service Is Rated The Best In The Industry

First year of on-site service is included in the price of the computer.

Self-diagnostic software.

Toll-free technical support hotline.

Next business day deskside service.

Here's How We Made It Even Better:

New Hours:

6am to 9pm Central Time, Monday-Friday

8am to 4pm Central Time, Saturdays.

24-hour toll-free TechFax line.

Dell Bulletin Board (512) 338-8528.

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But let's say your normal hours are ridiculously abnormal.

Even if you're pulling an all-nighter, you can still call the Dell technical library on our new twenty-four hour automated TechFax line. Detailed information will be faxed

WHAT SERVICE?

back to you automatically.

But our help doesn't end there.

We've introduced a Dell Bulletin Board. When you tap into it with a modem, you'll see other questions about Dell computers. Better yet, you'll see Dell's answers, which could help you learn more about your own Dell system.

One more word about your calls:

We log every call you make to us into a database. Over the course of years, we end up knowing your computer better than you do. This familiarity with your computer means better help quicker.

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HOURS: 6 AM-9 PM CT M-F 8 AM-4 PM CT ON SAT
FOR NETWORKING/UNIX® INFO
800-678-UNIX
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We're actually there when you need us the most. It doesn't happen too often, but occasionally even our technical hotline people can't solve your problem over the phone. Then the trained technicians at Xerox will actually come to your desk the next business day, with the solution or part in hand.△

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Circle 75 on reader service card

board to Western Digital for repair. At the company's request, I prepaid the $225 repair fee. After a month and a half and several phone calls, I received the board back, but after installing it I found that it didn't work at all. I contacted Western Digital and was told to send the board back. I have left several messages in the hopes of getting a return merchandise authorization (RMA) number to return the motherboard, but Western Digital has not responded to my calls.

I would now like my money refunded, including the long-distance charges I have incurred, for a total of $239. I also expect the motherboard to be returned in working condition.

Elemer Dubrovay
Redmond, Washington

Western Digital responds: To rectify this matter, we have sent Mr. Dubrovay a new replacement motherboard and a check for $225, refunding the amount paid for the repair of the first motherboard.

Mr. Dubrovay has also been issued a check to reimburse him for his phone calls.

Lynda Orban
Product Public Relations Manager

No Quick Fix

I am writing in regard to *LabelPro*, a software package put out by the Avery Label Company. Printing labels on a laser printer can be quite time-consuming, and when I saw this program, I thought my problems were over. Not so.

Whenever I made a mistake with version 1.0 of the program, the computer speaker would sound one long continuous beep and lock up. The only way to restart was to turn off the computer and start over.

Avery's technical support told me that this was a common problem and that if I sent the company a letter outlining my difficulties, I would be put on the list to receive an update when the fix was found.

Several months later I received version 1.01 of *LabelPro*. Almost immediately the same problem occurred. I called Avery's technical support department and was told this was still a common problem and that someone would call me back. Three weeks later I called again and was told that since the problem had been corrected on most customers' systems, Avery no longer considered it a problem.

I find it hard to believe that if the program won't run on my IBM PC XT, it will run on any other system. I asked for a refund and was refused. I would really like to have the working program instead.

It seems that if you are perfect and never make mistakes, then *LabelPro* is for you.

Frederick W. Fisher, Jr.
Roswell, Georgia

(continues)

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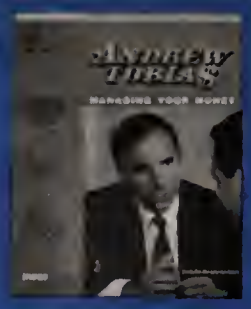

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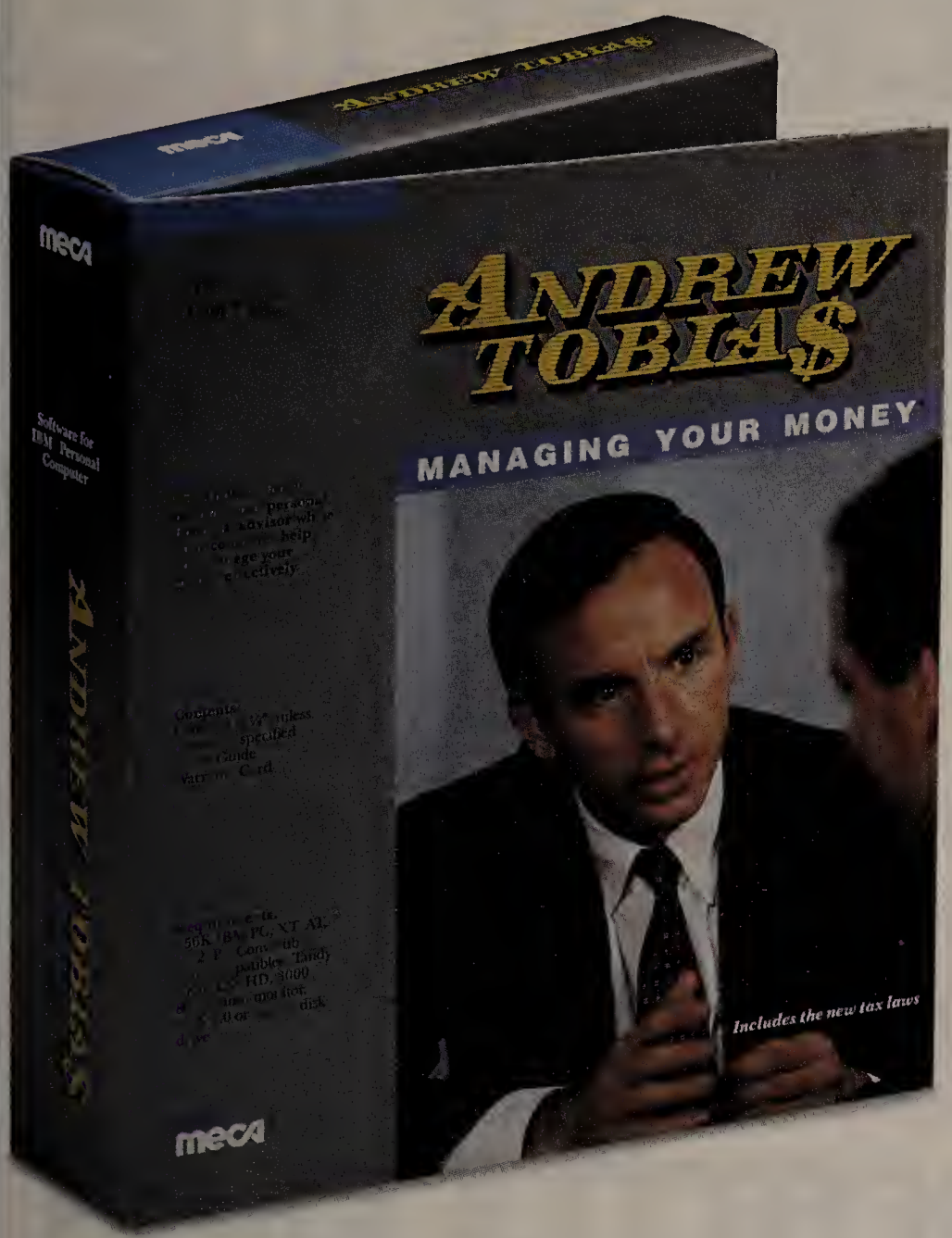

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Avery responds: We are investigating what may be causing the continuous beep Mr. Fisher found when using the software. However, in the interim we have sent a check for $99.50 to cover the cost of *LabelPro,* as well as several boxes of Avery Laser Printer Labels for his trouble.

Frank Rexach
Senior Product Manager
PC Supplies and Software

Two Bad Apples

Seven months ago I purchased a Sony CPD-1302 monitor as part of a computer system. After less than three months of use, the monitor failed. I contacted Sony and was told that if my dealer wouldn't replace the monitor, I would have to take it to a local service center, where diagnosis and repair would take six to eight weeks. Fortunately, my dealer replaced the defective monitor with a brand-new Sony CPD-1302 monitor.

Several weeks ago, however, the second monitor started to fail—again after less than three months of use. My dealer tells me he can't take my monitor back because Sony won't replace it with a new one. My only option is to wait six to eight weeks while the monitor is repaired (at my cost).

I wonder if Sony is aware that this product has a tendency to fail after such short periods of use.

Thomas M. Swett
Oakland, California

Sony responds: The CPD-1302 is a highly reliable monitor. Our records indicate a failure rate of less than 1 percent. Whatever the cause of Mr. Swett's problems, they are not due to the monitor's design or manufacture.

Sony's standard warranty is 90 days labor, one year for parts, and two years on the picture tube. Our policy is 5-day turnaround on monitors returned to Sony for inspection and repair. If for some reason we cannot complete the inspection and repair in this 5-day period, we contact the customer directly, inform him or her of the situation, and let the customer know approximately when the monitor will be returned.

(continues)

POWER TIP NO. 143

Snappy Quarters and Halves for WordPerfect

If you want to insert ¼ and ½ into your *WordPerfect* documents, try using the Compose key. Press <Ctrl>-V followed by either /4 or /2 to produce ¼ or ½ respectively.

Debra Faulkner
Framingham, Massachusetts

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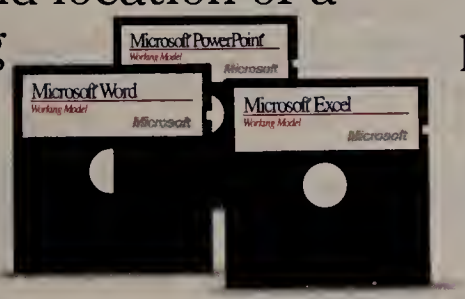

The truth is, we believe there could be only one reason why people might not see just how much Windows Computing means to the future of the personal computer.

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We are replacing Mr. Swett's current CPD-1302 monitor with a loaner while Sony extensively tests his unit to diagnose and correct the difficulty.

Thomas Rizol
General Manager
Computer Peripherals Product Division

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I ran into an intermittent problem with the display on a brand-new Micro Express ME286E system that our company purchased by mail order. The problem was diagnosed over the phone as a faulty EGA card, and Micro Express offered to replace the card immediately. In checking their stock, they advised us (during the same phone call) that an exact replacement was not available but that they would ship us the next-better model that afternoon at no additional charge.

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M. E.
Zets Syro Steel Company
Centerville, Utah

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POWER TIP NO. 144

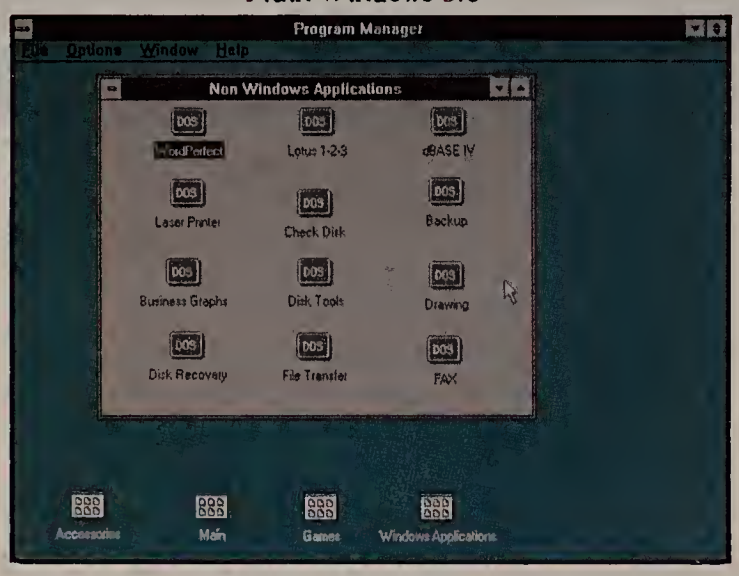
Using Windows' Task List for Easy Application Switching

Windows 3.0's pop-up Task List makes it a snap to switch between application windows. Keyboard users can call up the Task List by pressing <Ctrl>-<Esc>. For mouse users it's even easier—just double-click anywhere on the background wallpaper.

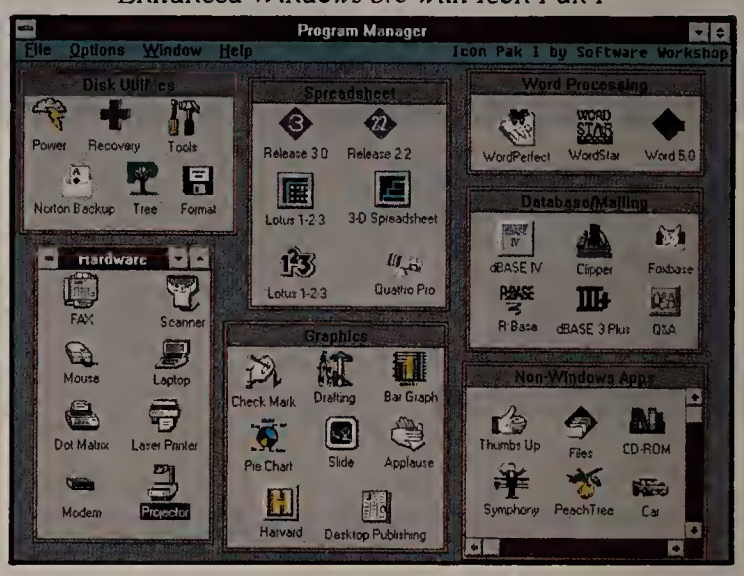
Ed Bott
Managing Editor

Get The Icons Windows 3.0 Forgot!

Plain Windows 3.0



Enhanced Windows 3.0 with Icon Pak I



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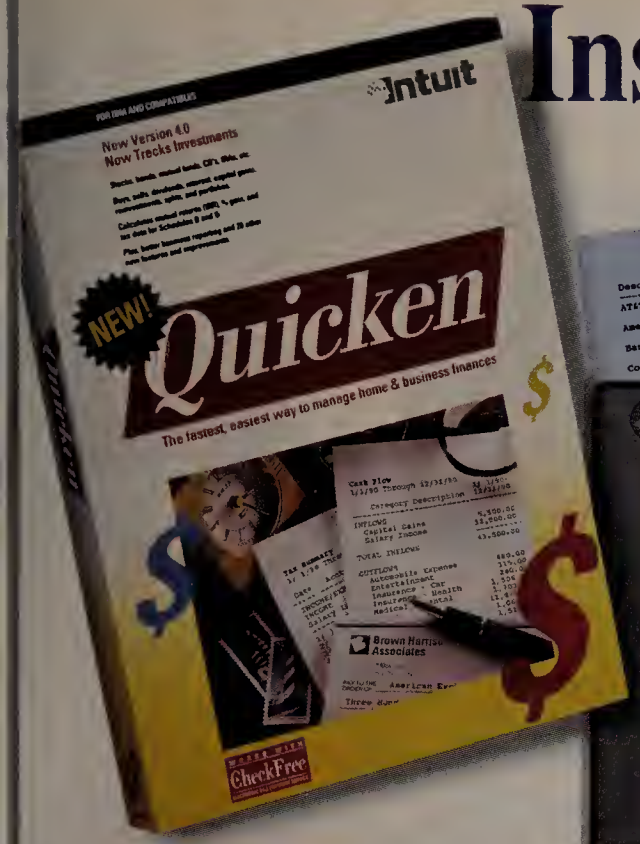

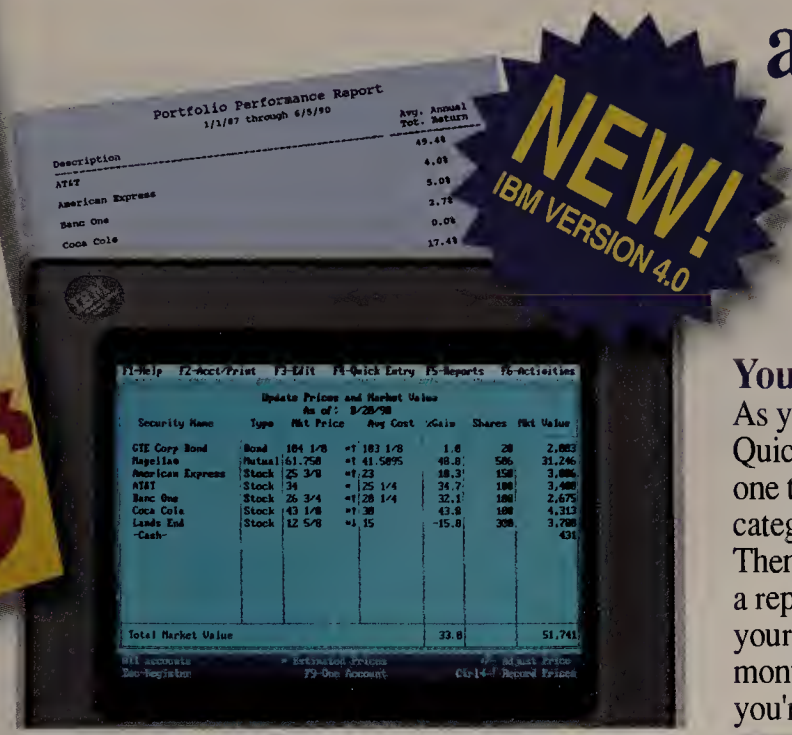

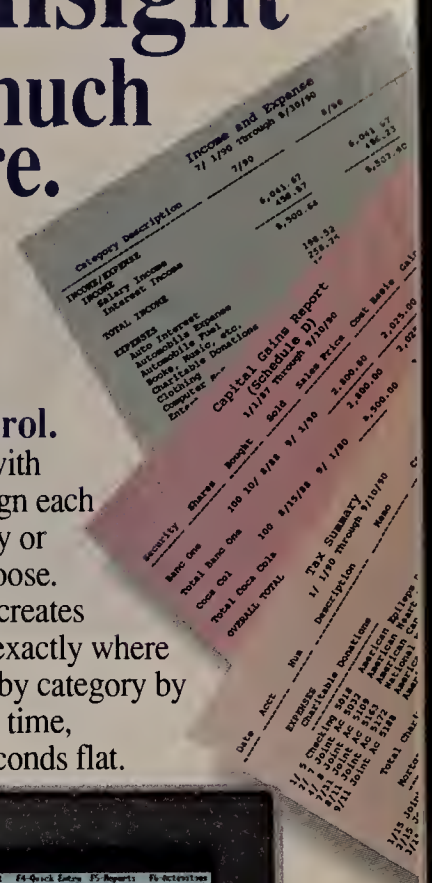

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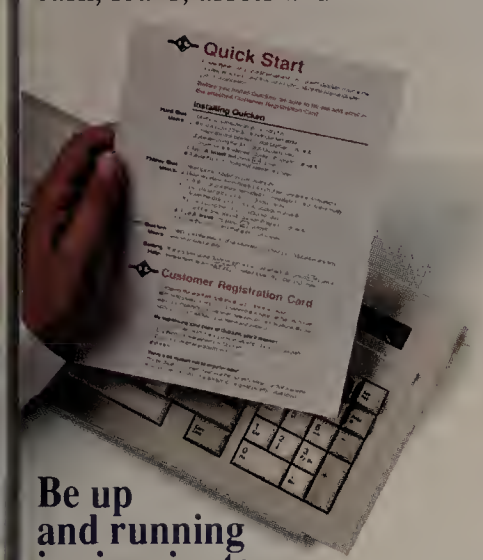

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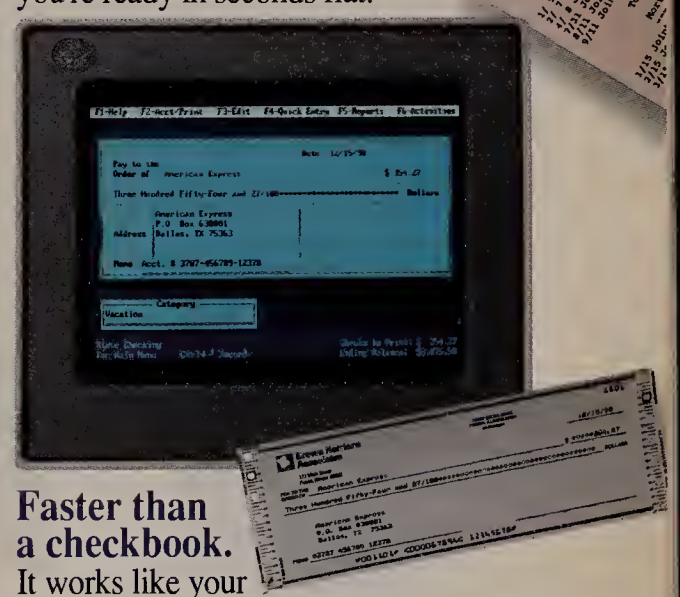

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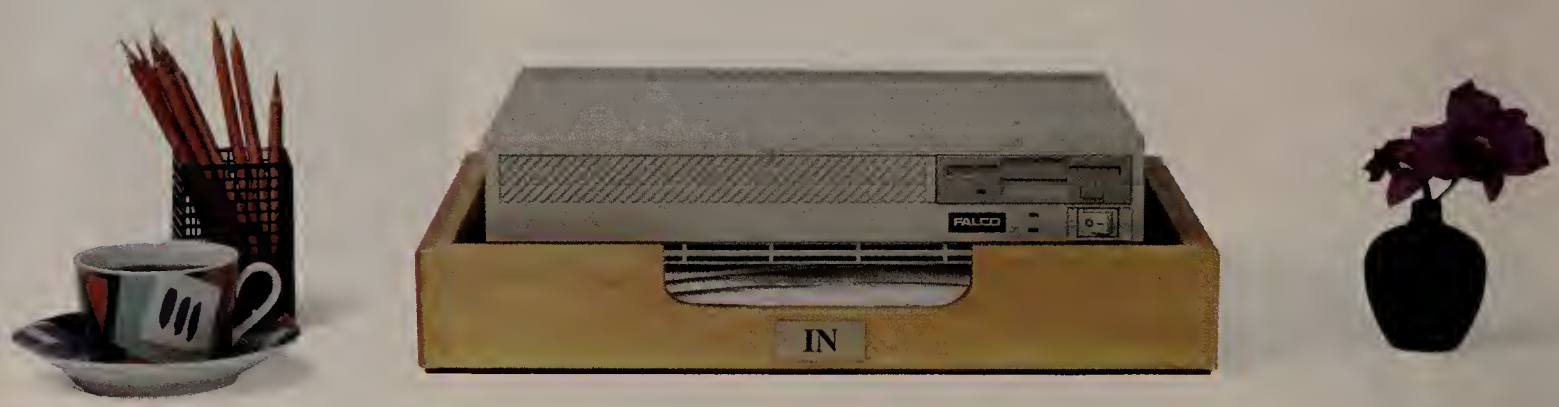

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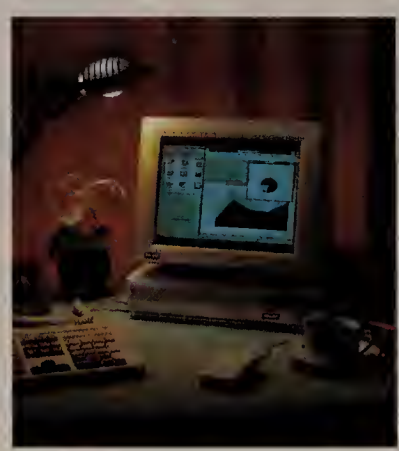

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Circle 77 on reader service card

Edited by ERIC BENDER

What Developers Want: More

Users See dBASE Moving Forward

New Ashton-Tate Management Team Gets Thumbs-Up

Pat Adams, head of DB Unlimited in Brooklyn, is looking for more in a data base management package than dBASE IV 1.1 delivers.

DANUTA OTFINOWSKI

The new *dBASE IV 1.1* sparked only muted applause, according to a *PC World* survey of 225 users, but Ashton-Tate's new management team and its attempts to reach out to users have prompted a swelling chorus of customer approval.

dBASE gurus say the new data base management package is primarily a bug fix, with only a few modest additions to a two-year-old feature set. "Would you buy a car if the best somebody said about it was that it was stable and usable?" asks Pat Adams, head of DB Unlimited in Brooklyn. In the long run, she says, Ashton-Tate products must meet far more exacting criteria to keep developers happy.

But the *PC World* survey shows that most users have lower expectations and that *dBASE IV 1.1*'s enhanced speed, relaxed memory requirements, and additions such as user-definable functions satisfy their appetites. In fact, some customers say the report writer, query-by-example implementation, and Control Center are as good as the best Nantucket and Fox have to offer—especially for nonprogrammers.

Wish Lists Long and Short

Developer wish lists are endless: Demands for expanded mouse support, even more speed, fuller use of expanded memory, better networking, and improved windowing are heard repeatedly. But for some users, even version 1.1 is too much of a good thing. The stamp and coin collectors who buy Marvin Mallon's *CompuQuote* software, for instance, tend to run it on 640K machines, some with no hard disk. That means *dBASE III Plus* is as high as they can climb. "If I did my program under *dBASE IV*, I couldn't distribute it to my customers," says Mallon, of Canoga Park, California.

Clearly, many diehards gave up on *dBASE* during the interim between *III Plus* and the latest upgrade. Others continue to bang the drum—however slowly.

"I've been beating on *1.1*, and they've fixed all the things I found wrong," says Russell Freeland, president of Synergy Corporation in Fort Lauderdale, Florida. "It has a better feel to it. It's snappier and more consistent."

Changes in Attitude

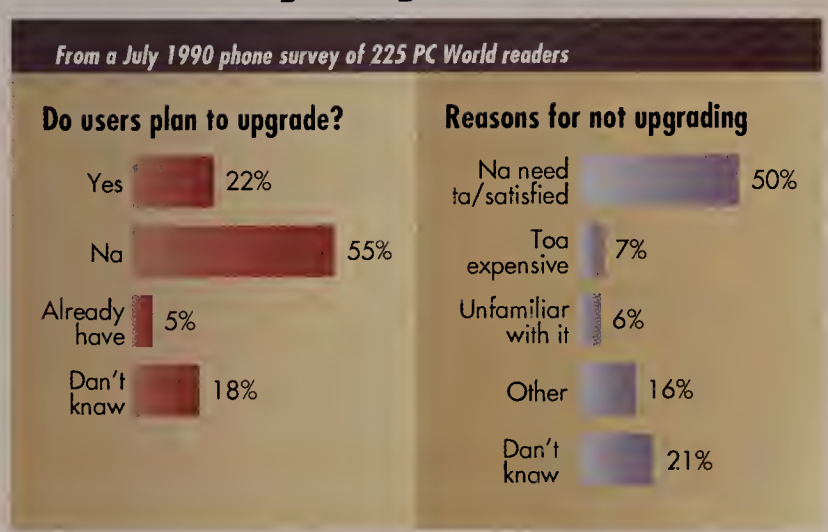
Perhaps the biggest news at Ashton-Tate is an altered attitude in the executive suite. President Bill Lyons and data base division general manager David Proctor won their jobs in a spring housecleaning. To the *dBASE* community, which bickered constantly with the previous management, the shift was as long overdue as version 1.1.

"Ashton-Tate has historically thumbed its nose at the user," notes Les Squires, head of the Boston Computer Society's *dBASE* user group and president of Word Jenny in Wellesley, Massachusetts. If Lyons follows through on his promises, Squires says, Ashton-Tate "will make a lot of us who bad-mouthed it eat crow."

The new executives win the most points for listening. "I can pick up the phone and be heard over there," says Tom Rettig of Tom Rettig Associates in Beverly Hills, California. They also get credit for Ashton-Tate's new support structure, epitomized by the improved no-cost telephone support and new toll-free technical bulletin board.

Lyons also earns praise for squelching Ashton-Tate programmers' endless additions of features to *1.1*. "Somebody had to say no," says Michael Irwin, systems analyst for the Washington, D.C., Metropolitan Police Department. "New management did it as soon as they walked in the door." —*Mark Henricks*

Users Stay Loyal to dBASE



Among the 41 percent of PC World readers who use a version of the leading data base management package, less than half currently plan to upgrade to the new dBASE IV 1.1. Among users who don't plan to upgrade, the leading explanation is that they're satisfied with their existing software.

BASIC Turns 50—Million

Popular Language to be Embedded in Windows

Wherever BASIC is going, it's not toward greater simplicity. There's nothing basic about BASIC anymore.

Microsoft has shipped more than 50 million copies of the language and claims more than 4 million BASIC programmers. Devotees like consultant Richard Harvey of Phoenix would rather pick up BASIC than so-called higher-level languages like C.

"I'll program in whatever you want, but if I have to do it alone and get a job done fast, I'll do it in BASIC," asserts Harvey. "If you try the same program in C, you'll need twice as many people and twice as much time because it won't be as readable or have the dynamic memory management and error handling of BASIC."

Since *Professional Development System (PDS) 7.0* debuted last fall, claims Microsoft, already healthy BASIC sales have leapt another 50 percent. But Microsoft plans to top even that by turning BASIC into a universal language, operating across all DOS applications.

An Early Start

BASIC's early success came from ease of use and its role before 1980 as virtually the only game around for professional and nonprofessional PC programmers alike. BASIC product manager Tom Button says that many commercial packages, mostly accounting programs, are still written in the language. BASIC's commercial popularity may be surprising, given that BASIC has always been handicapped by a reputation for simplicity and dawdling performance.

Ironically, the language also suffered from Bill Gates's success in getting it shipped with nearly every PC introduced since the MITS Altair in 1975. BASIC didn't light a fire under most users early on—it was just something you got for free and used for writing an occasional printer routine. Distracted by its other languages, Microsoft let BASIC research drift.

But in 1984 Borland International began selling a far more capable language, *Turbo Pascal*, to schools and every hacker from Boise to Bangor at a rock-bottom price. President Philippe Kahn had identified a new class of entry-level programmers and found innovative ways to reach them.

Borland has maintained its strong hold on schools, but Microsoft fired back in 1985 with *QuickBASIC 1.0;* regular updates matched *Turbo Pascal* capabilities and culminated in *QuickBASIC 4.5,* which appeared in fall 1988. Microsoft also began work on an interpreter/incremental compiler that premiered with *QuickBASIC 4.0* in 1987 and has been the backbone of all BASIC work since. The technology's bottom line is faster development—it takes advantage of the wasted CPU cycles between keystrokes to compile your program while you're writing it.

Cross-Application Tool

But Gates had a grander vision for his firstborn—as Button puts it, "to make BASIC a part of everything." That meant attacking one of computing's most nagging problems, the way different applications are isolated from one another.

CRAIG WELLS

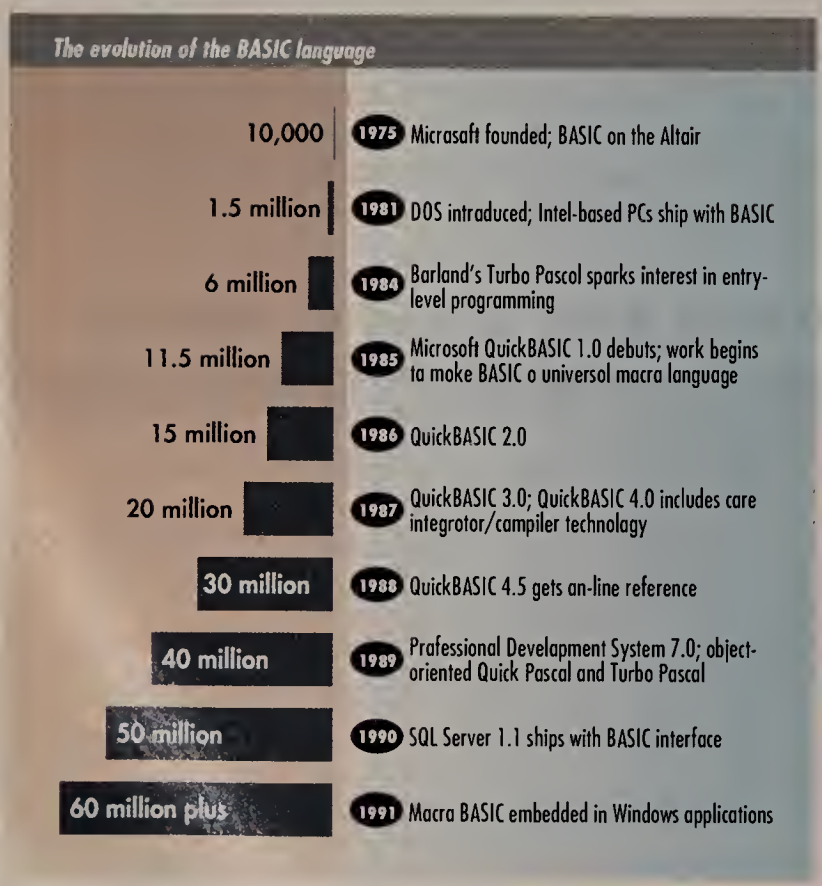
If you have to do a project alone and you need to get the job done fast, then do it in BASIC, says consultant Richard Harvey of Phoenix.

What if you could reach across all applications and pick just the functions you wanted to build your own custom program? You could, say, take data from a *dBASE* table, analyze it and chart the results in an *Excel* spreadsheet, and generate a report using *WordPerfect*'s formatting and printing functions. Microsoft wants to make BASIC the single cross-application language that will overcome the file format and programming barriers that now exist. "We expect it to seriously blow away every other macro language available," says Button.

The first step down this road is an embedded macro language, scheduled to debut in 1991, which will glue different *Windows* applications together. Eventually, fairly powerful capabilities will be brought down to the operating system level. "Microsoft is trying to develop the technology in such a way that it's usable by other vendors as well as ourselves," Button adds.

In the meantime, *PDS 7.1* includes a relational data base, and *SQL Server 1.1* ships with a BASIC Library for creating sophisticated network applications. And there's nothing basic about that. —*Mike Hogan*

BASIC Sales Broaden



What began as a slow trickle has become a torrent of sales, and BASIC remains the most widely distributed programming language. Next, Microsoft hopes to turn BASIC into a universal macro language. Sources: Microsoft, Dataquest, International Data Corporation.

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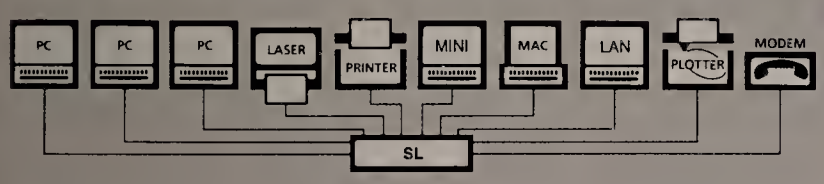

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Dealer Profits Dwindle

Analysts See Many Stores Folding

Growing dealer profit problems are rewriting the rules on customer support. Take Businessland: Even after a period in which it appeared to do everything wrong, the San Jose computer chain's financial results were a shocker—a $23 million loss for the year ended June 30. But that's just one low point in a reseller industry where solid profits have become the exception.

The 11 leading resellers tracked by San Francisco–based Merrin Information Services showed only 0.4 percent profit after taxes in 1989. This year again, says Seymour Merrin, leading resellers will be lucky to break even. Such figures spell a shift in the way goods and services will be sold, and the bottom line is this: You'll pay more for service and support.

Manufacturers don't solve the margin problem—if they help dealers fund added services, dealers typically are forced to give up the dollars to price cuts. If dealers can't raise prices, they must cut overhead. But many resellers, notably superstores like Soft Warehouse of Dallas, have already trimmed costs to the bone. And no one expects dealers to raise prices across the board. "I don't think you're going to see gross margins on the hardware go up," says Ben Huston, an analyst at Montgomery Securities in San Francisco. "Ever."

Instead, Huston and other analysts say, dealers must promote after-sale services. At Businessland, for example, service fees account for 5 to 7 percent of revenues—about half what they should be, says Huston. And those revenues won't expand until resellers can accurately target the right support to provide.

Breaking Out Support

The theme is unbundling support—if you don't pay, you won't get it, whether it's classroom hours or telephone support. Rather than throw in a few hours of training along with a copy of *1-2-3*, for instance, resellers would sell credits for courses.

However, "end users have been conditioned to expect this stuff for free," says Lee Levitt, analyst at International Data Corporation in Framingham, Massachusetts. "It's difficult to change a customer's mind-set when he expects something for free."

This problem is particularly acute with midlevel buyers, who remain stubbornly unwilling to pay for à la carte services. "Dealers aren't losing money on the 5000 boxes they sell to XYZ Conglomerate," says analyst Peter Siris of New York's UBS Securities. "They're losing money by giving a reasonably low price to a company that buys 10 or 15 machines and then giving it the same level of service."

Targeting the Service

When resellers do offer fee-based services, their focus isn't always clear. "When we've offered networking and support services, often we've thought the target was the medium-sized and smaller customer," says Peter Hayes, Businessland's director of marketing communications. But in fact "the most frequent users of those services turned out to be large corporate customers."

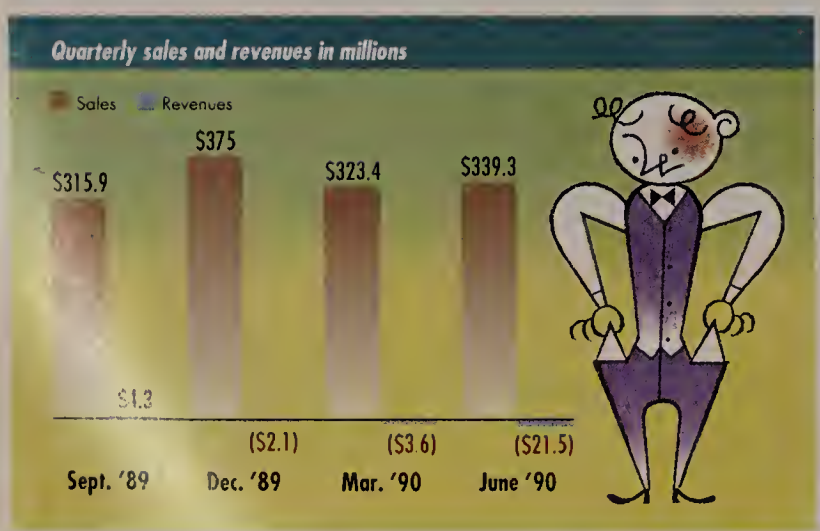
Confused marketing is joined by inadequate cost controls. Salespeople often decide how much support a small- or medium-sized customer will require when they're making the sale and adjust the price and their promises on the spot. In this atmosphere, says IDC's Levitt, "the end user doesn't know what he's receiving, and the dealer doesn't know what he's paying for it."

Two types of dealers avoid these pitfalls totally—superstores that give minimal support and value-added resellers that specialize in tough jobs like network installations. Resellers "have to go up to more value-added [offerings] or to low-cost mass marketing, or they'll go away," says Montgomery's Huston.

He predicts up to 10 percent of dealer outlets will shut down within a year. A big chain like Businessland won't go away, but many analysts expect a merger—perhaps with a true system integrator like General Motors' Electronic Data Systems.

Ultimately, resellers will be reshaped by how users vote with their pocketbooks. "Users are getting what they're asking for," says Merrin bleakly. "If there were a market for a higher level of support, people would be paying for it, and dealers would be delivering it." —*Mark Henricks*

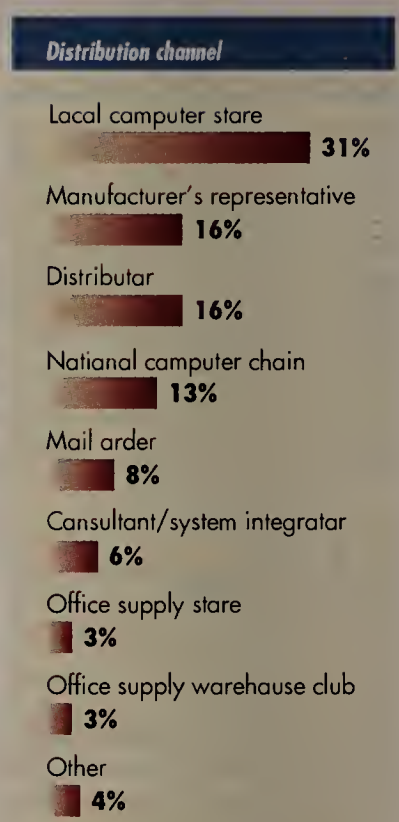
Red Ink at Businessland



Businessland grew to national stature on paper-thin margins but stumbled in the past year. Analysts say many reseller chains are feeling the same pressure and responding in part by charging more for support.

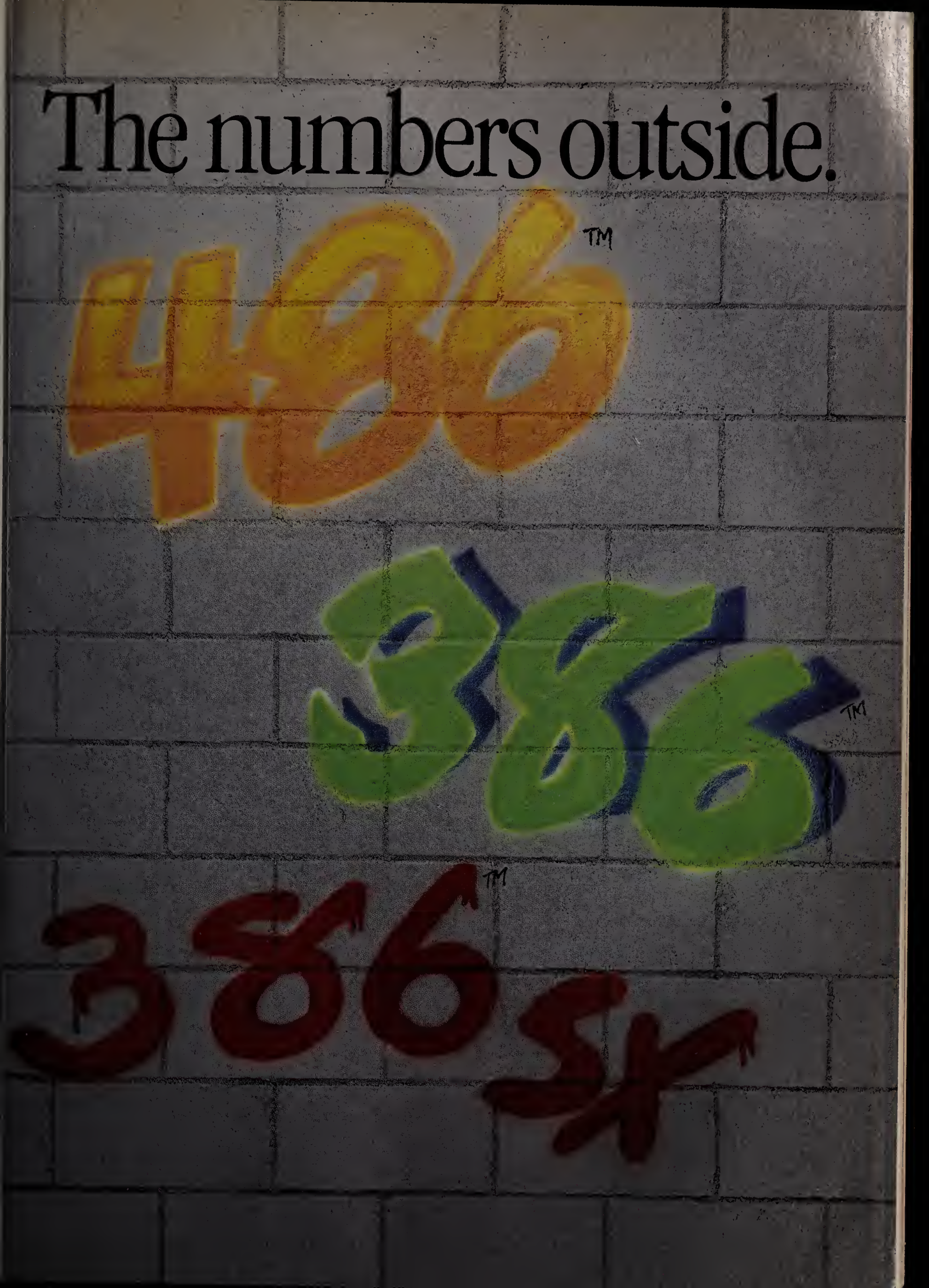
PHIL ANDERSON

Where Small Business Buys Computers



Local computer stores remain the most likely source for small businesses acquiring PCs, according to Business Research Group. While many PC vendors feel it's too expensive to sell direct to small businesses, that channel still ties for second place with distributors. BRG defines small businesses as those with less than 100 employees but with at least one employee other than the owner (thus excluding home offices).

The numbers outside.



Quarterdeck Strengthens Desqview

Environment Still Offers Features That Windows Lacks

The souped-up Desqview/X has attracted the interest of users like Alan Booth, software development manager in Vienna, Virginia.

WALTER CALLAHAN

This duel began in 1984: giant Microsoft with *Windows* versus start-up Quarterdeck Office Systems with *Desqview.* But now that the *Windows 3.0* onslaught is truly under way, should you throw away your copy of Quarterdeck's windowing environment? No way, say *Desqview* devotees, who applaud Quarterdeck's ongoing efforts to turbocharge DOS.

Founded by Therese Myers and Gary Pope in a garage eight years ago, the private Santa Monica, California, firm hit about $11 million in sales last year. That's just about the size of this year's *Windows* promotional blitz. Microsoft's graphical environment sold 830,000 units within two months of its release, and analysts expect sales to pass 2 million this year. Quarterdeck has shipped 1.5 million copies of *Desqview*—total.

Some analysts call *Windows 3.0* the death knell for *Desqview.* "If I were Quarterdeck, I would start looking for new products to sell," says Jeffrey Tarter, publisher of *Soft-letter* in Watertown, Massachusetts.

But Quarterdeck says it's already found one: *Desqview/X,* a souped-up version that allows networked PCs to share programs with UNIX workstations. Scheduled to be available next year, *Desqview/X* cleverly taps the X Server concept—a standard UNIX mechanism that lets one machine display a graphical application running on another networked system that may be totally incompatible. Adding *Desqview*'s bag of PC software tricks, you can juggle both DOS and UNIX applications on your networked PC—or on a Sun workstation. (PC packages actually run on the PC, UNIX programs on the workstation.)

Users hail this concept. "It's a coup," says Eric Pilger, a software programmer at the University of Hawaii. "I was quite impressed with *Desqview/X,*" agrees Alan Booth, software development manager with Engineering Research Associates in Vienna, Virginia. "You can multiprocess on different platforms. That's the excitement of the whole thing—you can run a UNIX program on a DOS machine," he notes.

Many corporate and commercial developers remain comfortably in the *Desqview* camp. Among the reasons: "*Desqview* is easier to use than *Windows,* from a developer's standpoint," says Don Norris, president of Smith/Norris Corporation, a San Francisco developer. "You have to go to three months of *Windows* classes to learn how to write an application."

Given sufficient horsepower, *Windows 3.0* multitasks existing DOS packages reasonably effectively, but *Desqview* still wins out on performance. It also demands less memory, points out Allen Grimes, director of management services for Aquarius Travel Management in Burlington, Massachusetts. Many backers insist it offers greater ease of use as well. *Windows* outsells *Desqview* almost ten to one at the Computer Warehouse in Phoenix, but manager Tony Spooner gives *Desqview* the nod for simple multitasking, "especially if you want to jump around from one program to another with ease."

Quarterdeck's memory management products also are robust, now producing 30 percent of sales. Even Microsoft acknowledges that Quarterdeck's *QEMM-386* is popular with *Windows* users "because it enables them to run larger non-*Windows* applications," notes *Windows* product manager Richard Abel. This popularity has prompted Microsoft to create a *Windows* memory enhancement standard that Quarterdeck and other parties can support.

Profitable since 1988, Quarterdeck has passed start-up size and now has more than 100 employees. The technical support staff grew from 10 to 45 within the past year; Myers says tech support calls now are answered in an average of 3 minutes.

JERRY SPAGNOLI

Desqview is easier for a developer to use than Windows, says Don Norris, president of Smith/Norris Corporation of San Francisco.

Because Quarterdeck lacks Microsoft's marketing muscle, *Desqview*'s sales will never match *Windows*', and OS/2 is starting to draw away some customers. But guarding DOS from obsolescence still strikes a strong chord among customers. "Every time the critics say we're going downhill our sales keep getting higher," says Quarterdeck cofounder Pope. —*Patrick Cole*

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New Products Move SPC Up the Corporate Ladder

InfoAlliance Targets Data Integration

In September, Software Publishing Corporation rolled out *InfoAlliance*, an OS/2 network package designed to knit together data from many sources (see the preview of *InfoAlliance* in this issue). The firm that made its fortune selling productivity software at retail to novice users is betting heavily on an avant-garde client-server package for well-heeled corporate clients.

"This product allows users to get information, no matter what the source, and present it in a graphical way," notes SPC chairman Fred Gibbons. "It's what's next after data bases." It's also entirely new territory for SPC.

When SPC started off in 1980, "pretty much everyone was a first-time user," and its *PFS* software reflected that, notes Gibbons. In the mid-eighties, as the PC turned capitalist tool, SPC went upscale, "moving most of the *PFS* series into the *Professional* line —cranking up the functionality." In this second stage, SPC's *Harvard Graphics* turned into a star, and the company's customer mix kept shifting. Today, 70 percent of sales are corporate.

InfoAlliance lifts SPC into its third stage: creating software that taps OS/2 networks, SQL data bases, and other denizens of the corporate connectivity world. In June, SPC formed an Information Access Division as a springboard into that world. Gibbons expects the division's head count to approach 100 by early next year —about one-sixth of SPC staff.

SPC has enjoyed strong sales growth and profitability, reaching $38.1 million sales and $5.7 million income in the quarter ended July 31. Gibbons emphasizes that *InfoAlliance* has been funded out of existing earnings.

KEN PROBST

SPC chairman Fred Gibbons (left) and vice president Kevin Conway head firm's effort to provide "decision-critical" software.

Harvard Graphics accounts for over half the revenues, and SPC will keep pushing graphics hard, aiming to withstand the heightened challenge from *Windows* alternatives. The company is allocating half its development resources to DOS products and half to OS/2, *Windows*, and the Macintosh. It will, however, pare down some DOS development, including work on the *OfficeWriter* line acquired in 1988. SPC will also weigh its moves carefully with *PFS: First Choice* now that the all-in-one package competes with titles from Microsoft and Lotus, who care more about attracting customers than about making a profit with those products, Gibbons says.

InfoAlliance targets needs at the corporate end of the PC spectrum. The first application one beta site built "contained 14 data sources and had slightly over 200 reports to generate," says Kevin Conway, SPC vice president and general manager of the Information Access division.

"In the past, Software Publishing has done a good job of talking about the future but hasn't delivered on it," says beta tester Bob Holmes, computer technology research analyst for Southern California Gas in Los Angeles. "This time they've translated that vision into something tangible. It's obvious they spent a lot of money on this project, and they spent it well."

SPC aims to supply "decision-critical" software, as Gibbons puts it. But do customers want to buy such crucial tools from a firm whose current mainstay is a presentation graphics package? Customers aren't "betting the company on Software Publishing right now," Gibbons acknowledges. To convince them, "we have to show them a three- to five-year plan for *InfoAlliance*," he says. "We're being asked to prove that we can support this financially...which will take deep pockets."

While Lotus sells its ambitious *Notes* package direct, *InfoAlliance* uses high-end resellers. "The industry is built on teamwork," Gibbons says. "We don't want to just chuck that infrastructure." But he acknowledges this is a "very innovative and experimental plan."

Four years ago, SPC wobbled through its last transition: Sales dropped 36 percent and income plummeted 88 percent in fiscal year 1986. But, says Gibbons, "this time we're not behind the wave—we're ahead of it." —*E. B.*

Patrick Cole is a Los Angeles business writer.

Software Publishing Surges, Aiding New Initiatives

Buoyed by strong performances from Harvard Graphics and other products, Software Publishing Corp. is on track for at least 30 percent growth in revenues in the year ended September 30. SPC's solid financial position will aid its plans to grab corporate sales with InfoAlliance.

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HEEAW
EE-YAHH!
CHOP
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PUMMEL
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PREVIEW

PC WORLD OFFERS FIRST IMPRESSIONS OF PRERELEASE HARDWARE AND SOFTWARE

A Kinder, Gentler dBASE

The wait for dBASE IV 1.1 is over: Ashton-Tate's flagship has been refitted with a leaner, cleaner architecture.

SCREEN 1: The QBE screen looks much the same in new version 1.1 but has been polished. Long expression fields now expand automatically as you enter their contents, and you can move directly to a Browse view of the queried data, as shown in SCREEN 2.

SCREEN 2: This Browse view is the direct result of the query in SCREEN 1, thanks to the better integration between modules. Pulldown menus add substantial flexibility to Browses but are wordy and questionably organized.

Alan Schwartz

dBASE IV 1.1 has finally arrived, relieving massive angst wherever handling data means doing it the *dBASE* way. A free upgrade to all *1.0* users, version 1.1 adds polish to *1.0*'s best features, manages memory more efficiently, and is finally reliable to use.

Ashton-Tate's highest priority is reassuring a skeptical public that it can create a stable, relatively bug-free, full-featured *dBASE*. After conducting an extensive beta testing program, the company seems to have succeeded in version 1.1.

When *dBASE IV 1.0* appeared in 1988, it delivered a feast of important new features. The still-unparalleled multikeyed MDX index format kept up to 47 indexes in a single file, and the powerful query-by-example (QBE) capability allowed nonprogrammers to retrieve easily only the data that they needed. New transaction commands assured data integrity in network applications, and code generators shortened the task of creating applications.

Unfortunately, severe memory and performance flaws rendered many of these features unusable, while data-destroying crashes and incorrect

SNAPSHOT

dBASE IV 1.1

The leading data base manager is now free of major bugs, leaner in memory use, and more polished in its many impressive features.

KEY FEATURES

- **Smaller memory requirement**
- **Smoother, faster performance around the Control Center**
- **Increased interoperability among modules**
- **Improved query-by-example screen**

AVAILABILITY

Immediate

PRICING

$795, developer's edition $1295, LAN Pack $995; upgrades from dBASE IV 1.0 are free; from dBASE III Plus $175, or $475 for the developer's edition

Ashton-Tate
20101 Hamilton Ave.
Torrance, CA 90509
800/227-4866

Reader service no. 747

query results scared users away. *dBASE* was too large to share 640K with many network drivers, yet it wasn't big enough to do its job: Opening one tool inside another often led to system crashes.

Ahh, Relief....

Those headaches have been cured. Version 1.1 requires 450K of free RAM compared to *1.0*'s 510K, but the improvements are far more profound than those numbers might imply. You can run *1.1* over most networks in a standard 640K workstation, and large applications can open lots of files and windows without dying from lack of memory. New options allow for adjusting memory usage as needed.

A revised overlay scheme has drained the swamp you'd hit when trying to access *dBASE*'s tightly integrated Query, Browse, Form, and Report development tools from the Control Center. Switching among these tools is now smooth, and they share more functionality—for example, you can change index orders while in a Browse view.

Few significant bugs had been reported at press time. Most had to do with contrived solutions for *1.0* problems, work-arounds that now can be abandoned.

Performance Resembles 1.0

dBASE IV 1.1 comes with a disk cache that taps extra memory to speed disk I/O. In many common data routines, however, performance improvements are minimal or nonexistent. Moreover, the cache's default "staged-writes" setting—slightly faster than the alternative "write-through"—is a dangerous way to handle data. Prying out a few extra seconds isn't worth the risk of data corruption, however small.

While *dBASE IV* won't win any races, it does perform most common tasks in acceptable time frames. One important exception: getting results from QBE screens, otherwise one of the program's most attractive features.

QBE's strength is the easy way it can operate with Browse and report creation. For example, you can define criteria that extract only certain records from a related group of data files, tack on calculated fields, browse the results, and feed the data into a custom report—all with a handful of keystrokes and no programming.

When *dBASE* executes a query, though, it uses the notoriously inefficient SET FILTER command to sift through records. For single-user applications with files of just a few hundred records, this presents no problems. But on a network with large files and substantial query traffic, things will slow to a crawl.

Language enhancements include conditional indexing (which lets you filter out records more quickly in some situations), a KEYBOARD command that simulates keystrokes (saving user keystrokes and helping to automate applications), and memory-tuning adjustments. User-defined functions now can exploit most of the language, making them much more powerful. And programmers and network administrators will benefit from new functions that make it easier to find out which user holds a record lock and how long the user has been holding it.

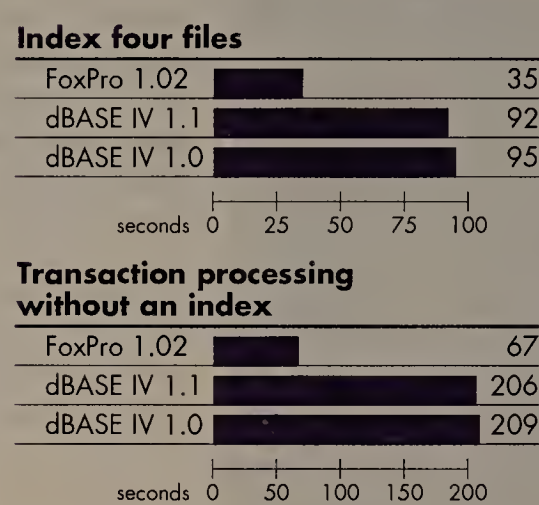
Control Center Unchanged

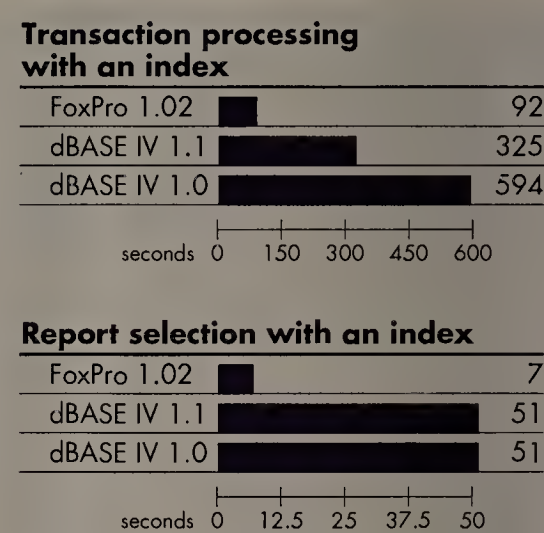
Unchanged from *1.0*, *dBASE IV*'s user interface is built around the Control Center screen. You move among the various modules using cursor keys, doing all the tasks in-

PC WORLD TEST REPORT

dBASE IV 1.1: Not Much Faster

If speed is your only criterion, there's little difference between dBASE IV 1.0 and 1.1. FoxPro, meanwhile, easily outpaces them both.





Methodology
Tests were conducted using a 20-MHz Compaq 386 with 5MB of RAM, a 256K extended-memory disk cache, and a 130MB ESDI hard disk. These tests were based on a modified version of TP1, a standard developed out of a real-world situation in which a retail bank wanted to create a system with 10 million accounts, 10,000 tellers, and 1000 branches. The standard unit of transaction selected was debit/credit.

Index four files
This benchmark measures the time required to index four files: Account (50,000 records), Teller (1000 records), Branch (100 records), and Transact (1000 records).

Transaction processing without an index
The TP1 benchmark is run with 1000 transactions. The history file is not indexed for this benchmark.

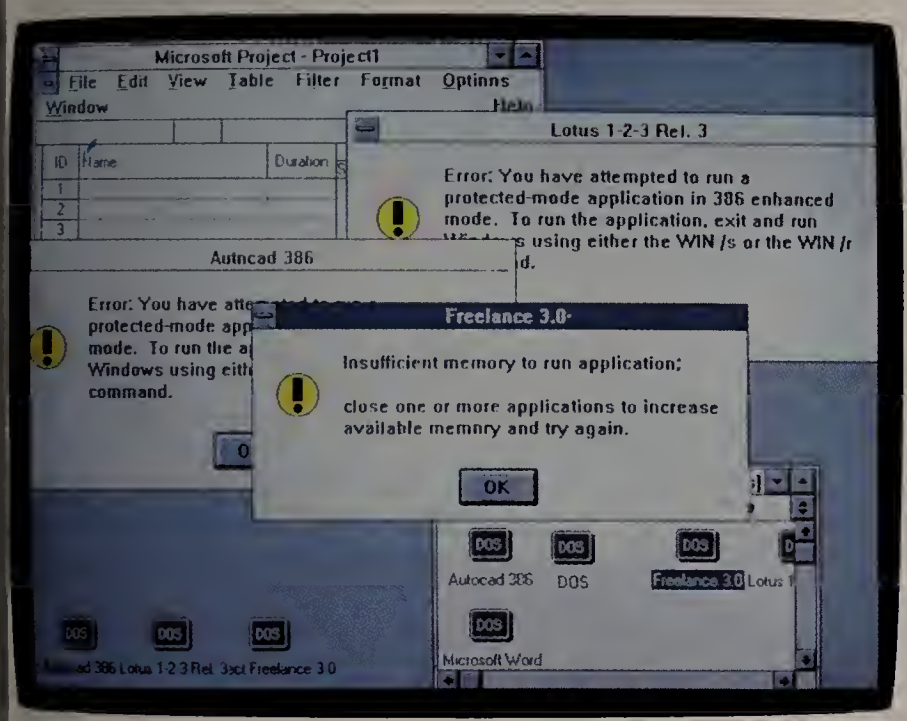
Transaction processing with an index
The TP1 benchmark is run with 1000 transactions. The history file holds 1000 records before the test and ends up with 11,000 records. This test differs from the previous benchmark in that it uses a history file indexed on four fields. Therefore an update of the index is required for each appended record.

Report selection with an index
This benchmark reports 1000 records from the Account file in index order with the selection criteria based on an index.

Data based on tests designed and conducted by National Software Testing Laboratories (NSTL), Conshohocken, PA 19428. All rights reserved.

Is Windows 3.0 the end of DESQview™?

Not if you're still using DOS programs.



Windows 3.0. The multitasking, windowing environment.

DESQview 386 2.3. The multitasking, windowing environment.

Are you still using MS-DOS programs on your PC?

You may want to use DESQview as your primary operating environment.

The new DESQview 2.3 and DESQview 386 2.3 let you use your favorite DOS and DOS-extended programs in windows side-by-side on 80286, 80386 and i486 PCs. As you can see above, you can even run Windows programs within DESQview 386. So the next time you get error messages like the ones at the left in Windows, remember how the same set of programs look running in DESQview.

Whatever standard you use—DOS, extended DOS or Windows—DESQview is still the best way to get the most out of the hardware and software you own today.

DESQview. The obvious choice.

Quarterdeck

Quarterdeck Office Systems, 150 Pico Boulevard, Santa Monica, CA 90405 (213) 392-9851 Fax: (213) 399-3802

This comparison was made using a system like the one you might run: Both shots show an ALR FlexCache 33/386 running DOS 3.3 with VGA display adaptor, Novell NetWare v3.01 Rev. A, with IPX/SPX v3.01 Rev A, Microsoft Mouse 7.00, and Microsoft SMARTDrive v3.03 disk cache. Buffers were set to 20. For the Windows screen, we ran Microsoft Windows 3 HIMEM.SYS and EMM386.SYS. For the DESQview screen, we ran QEMM 386 v5.1.

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FOX AND WORDTECH UP THE ANTE WITH UPCOMING PACKAGES

Competitors haven't been standing around idle while Ashton-Tate made *dBASE IV* workable. Both Fox Software and WordTech Systems plan to come out with major upgrades of their *dBASE*-compatible packages either late this year or early next.

In 1989, Fox Software's *FoxPro* added to the *dBASE* standard significant language extensions, lightning-fast data handling, and a character-based windowing interface. With version 2.0, Fox will extend these powers with *dBASE IV*–like multikey index files, query by example, full screen and menu design tools, an EXE compiler, an application program interface (API) for C and assembly language libraries, and faster performance to boot.

Fox claims that a new patent-pending technology will increase the speed of queries to up to 100 times that of version 1.x. The benefits won't affect indexed FINDs and SEEKs, either; such nonindexed, previously slow commands as LOCATE FOR will zoom. If the improvements meet half of Fox's claims, they could open up whole new vistas of data base capabilities.

Query by example is closely tied to this new technology. As with *dBASE IV*, *FoxPro 2.0*'s QBE will let users specify relational links and record extraction criteria, but Fox says it will be much faster than Ashton-Tate's offering.

FoxPro 2.0 will finally provide screen and menu design tools that match its mouse and window interface, so users can point and click to design data entry forms, menus, and fully functional dialog boxes. These tools will write their output as regular DBF files. The template language has been replaced with a simple text-merge command so developers won't have to learn a second language to generate *dBASE* code.

Moreover, *FoxPro 2.0* will have an EXE compiler, allowing you to create stand-alone applications. Just as significant, Fox is publishing a full API, which will let developers write add-in C and assembly language libraries that access all of Fox's internal data and window management facilities while adding graphics, statistics, and data file formats other than DBF. Dynamic linking of API-created libraries also will be possible.

Although *FoxPro 2.0* will handle SQL SELECT queries complete with complex joins, the program won't support servers directly. Fox hopes this support will come from server vendors and third-party developers working with the API.

Meanwhile, with its new *Arago* versions due out in November, WordTech will try to reclaim a leading-edge position. It's been over two years since the company's *dBXL* interactive development environment or *Quicksilver* EXE compiler have been upgraded.

Like *FoxPro*, *Arago dBXL* will use a character-based windowing interface whose windows, mouse support, pop-ups, and scroll bars will also be supported with new commands in *Arago Quicksilver*. A new debugging feature will track which blocks of code have been run in a test. Both an application generator and Concentric Data's *R&R Relational Report Writer* will be included, and *dBASE III*'s NDX and *dBASE IV*'s MDX index formats will be supported. WordTech claims *Arago* is two to three times faster than *FoxPro 1.0*. —*Alan Schwartz and Lincoln Spector*

WHERE TO BUY

FoxPro 2.0
Fox Software
134 W. South Boundary
Perrysburg, OH 43551
419/874-0162, 419/874-8678 (fax)
LIST PRICE: not yet available
REQUIREMENTS: not yet available
Reader service no. 748

Arago dBXL, Arago Quicksilver
WordTech Systems Inc.
21 Altarinda Rd.
Orinda, CA 94563
415/254-0900, 415/254-0288 (fax)
LIST PRICE: $495 for dBXL, $695 for Quicksilver, $995 for both
REQUIREMENTS: 512K RAM
Reader service no. 749

volved in handling data or creating applications. But as you move from module to module, the logic of the interface changes or disappears entirely. Features are often hidden in lengthy, wordy, and questionably organized pulldown menus. In the Report Design screen, for instance, 'Remove line' is in the Words menu.

While the interface harbors no major bugs, neither does it host any mice. The movable, sizable, scrollable windows that are becoming commonplace even in text-based programs are nowhere to be found in *dBASE*. Combine this with heavy reliance on nonstandard function key combinations, and new users face an even steeper learning curve.

Still dBest?

More than two years ago Ashton-Tate promised both a *dBASE* compiler that created stand-alone EXE files and a client-server *dBASE* version that supports *SQL Server*. The company still won't give ship dates for those products, or for versions for *Windows*, OS/2 Presentation Manager, and other platforms. Given the delays, many customers remain skeptical.

Ashton-Tate must demonstrate an ongoing commitment to maintaining *1.1* and successfully launch companion programs before managers will plan long-term, multiplatform strategies around its products. The company has fulfilled its initial promise, however: a workable, dependable, full-featured environment for developer and end user alike.

Alan Schwartz is a contributing editor and Lincoln Spector an assistant editor for PC World.

When choosing a personal computer, there are two questions you should ask.

A CLONE BUYER'S CHECKLIST

Why FastData?

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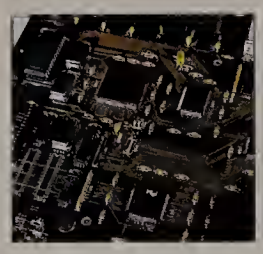

The whole is only as good as the sum of its parts; and FastData systems use some of the best parts in the industry. For example, each FastData system ships with a Keytronics keyboard; Keytronics costs a lot more than others, but the quality is worth it.

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Our face to face retail background has made us never forget that the customer comes first and that a personal computer is just part of a customer's overall needs. That's why FastMicro offers thousands of hardware and software products to enhance your new personal computer. In fact, our competition will probably tell you to call us when you need something to run on their personal computer.

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Standard Features

- ✓ 16mhz Intel 80386-SX processor. (20mhz optional)
- ✓ 2 megabytes of zero wait-state RAM.
- ✓ 40 mb 28ms IDE hard disk, 1:1 interleave.
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- ✓ Standard chassis with keylock, speed and reset buttons. (Optional chassis add $50)
- ✓ Five available drive bays.
- ✓ 200 watt power supply
- ✓ 14" VGA color monitor with 16 bit VGA card with 256K.
- ✓ Clock calendar, parallel port, and two serial ports. (Game port included on color systems)
- ✓ Keytronics 101 key keyboard.
- ✓ 8 expansion slots, 5 available.
- ✓ 80387-SX coprocessor socket.
- ✓ Full Shadow RAM and LIM 4.0 EMS support.
- ✓ Phoenix BIOS.
- ✓ Compatible with DOS, OS/2, Windows, Xenix and Novell.
- ✓ FCC Class B approved.

System Price	40mb	65mb	80mb	100mb
Monochrome	$1,269	$1,369	$1,519	$1,619
VGA Color	$1,599	$1,699	$1,849	$1,949
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FastData 386/25 $2299

The optimum combination of features, expandability, and power make the FastData 386/25 an ideal choice for those whose applications demand the most from a computer. Whether running as a network fileserver, CAD or graphics station, or power-user's workhorse, the FastData 386/25 handily meets the challenge. It comes configured with a whopping four megabytes of fast RAM, a superfast 22 millisecond 65 megabyte hard disk, and maximum VGA displaying 1024 by 768 resolution powered by a high-output 16 bit 512K VGA board. Plus, the FastMicro team will configure your FastData 386 exactly the way you want, without sending you shopping elsewhere. When evaluating 386-DX workstations, why even consider anything else?

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- ✓ Five available drive bays.
- ✓ 80387-DX coprocessor socket.
- ✓ 200 watt power supply
- ✓ 14" Super VGA color monitor, 1024x768 resolution, with 16 bit VGA card with 512K.
- ✓ Clock calendar, parallel port, and two serial ports. (Game port included on color systems)
- ✓ Keytronics 101 key keyboard.
- ✓ 8 expansion slots, 5 available.
- ✓ Full Shadow RAM and LIM 4.0 EMS support.
- ✓ Phoenix BIOS.
- ✓ Compatible with DOS, OS/2, Windows, Xenix and Novell.
- ✓ FCC Class B approved.

System Price	65mb	80mb	100mb	200mb
Monochrome	$1,819	$1,969	$2,069	$2,469
VGA Color	$2,149	$2,299	$2,399	$2,799
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Logitech ScanMan Plus 165

ScanMan Plus by Logitech $165

The perfect companion to popular desktop publishing software, the ScanMan Plus comes with PaintShow Plus editing software. It scans from 100 to 400 DPI and up to four inches wide. Add just $139, and CatchWord OCR software will let your ScanMan actually read text!

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Paradise VGA 1024 $175

The 16-bit VGA 1024 comes standard with 256K and is expandable to 512K & will do up to 256 colors. It does up to 1024x768 interlaced, is compatible with EGA & CGA software, & comes with drivers for most major software. Free Indiana Jones 256 color game included (while supplies last).

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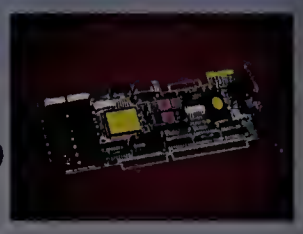
FastData 16 Bit VGA



The FastData 16 bit VGA card features 256K of video memory, does CGA, EGA, & VGA up to 1024x768. Its expandable to 512K and comes with a 30 day money-back guarantee.

$99 256K Vers.
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FastData CGA Card 35
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- ✓ 12mhz 80286 processor.
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- ✓ 1.2mb 5.25" or 1.44mb 3.5" floppy drives
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- ✓ Five drive bays.
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- ✓ Phoenix BIOS.
- ✓ Monochrome monitor with monochrome graphic board.
- ✓ Clock calendar, parallel port, and two serial ports.
- ✓ Keytronics enhanced 101 keyboard.
- ✓ 8 expansion slots, 6 available.
- ✓ Full documentation.
- ✓ FCC Class B approved.

System Price	40mb	65mb	80mb	100mb
Monochrome	$899	$999	$1,149	$1,249
VGA Color	$1,229	$1,329	$1,479	$1,579
VGA 1024	$1,379	$1,479	$1,629	$1,729

FASTMICRO

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1-800-441-FAST

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Clarion Professional Developer	Call
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dBase III+	419

FoxPro $417

The fastest, most powerful, Dbase language relational database available today. Includes windowing, desk accessories, memo fields, and report writer. The trace window lets you watch while FoxPro debugs your programs. Add a mouse and you can run it with point and click ease.

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dBXL Diamond	129
Foxbase Plus	177
FoxPro	417
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Corel Draw $309

Winner of all the top awards, Corel Draw gives you more for your money. It supports the new Windows & includes incredible drawing and editing tools. Includes over 100 typefaces and 300 pieces of clipart. CorelTrace converts scanned art to smooth vector images in seconds. This is the most complete illustration package we've ever seen!

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GEM Desktop Pub.	159
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Generic Cadd Level 3	199
Harvard Graphics	275
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PC Paintbrush IV Plus	109
Perspective Jr.	69
PFS:First Publisher	89
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Publish It!	104
Ventura Publisher Gold	519

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Peachtree with Data Query	209
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Logitech Trackman Serial	75
Microsoft Serial or Bus w/ paint	95
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Lucid 3-D	53
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WORD PROCESSORS

GEM First Word Plus	52
Grammatik IV	49
Multimate 4.0	267
Professional Write	149
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Word for Windows	309

WordPerfect 5.1

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Word Perfect Add'l Station	153
Word Perfect Library	67
WordStar Professional	Call

WINDOWS SOFTWARE

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Adobe Type Manager (UT)	59
Ami (WP)	115
Ami Professional (WP)	287
Asymetrix Toolbook	279
Corel Draw (GR)	309
DBfast/Windows (DB)	239
Excel (SS)	299
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Prodigy	25
QEMM 386	52
QRAM	43

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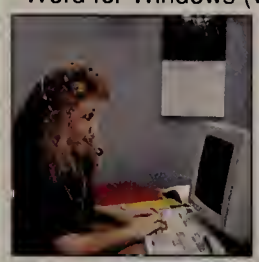

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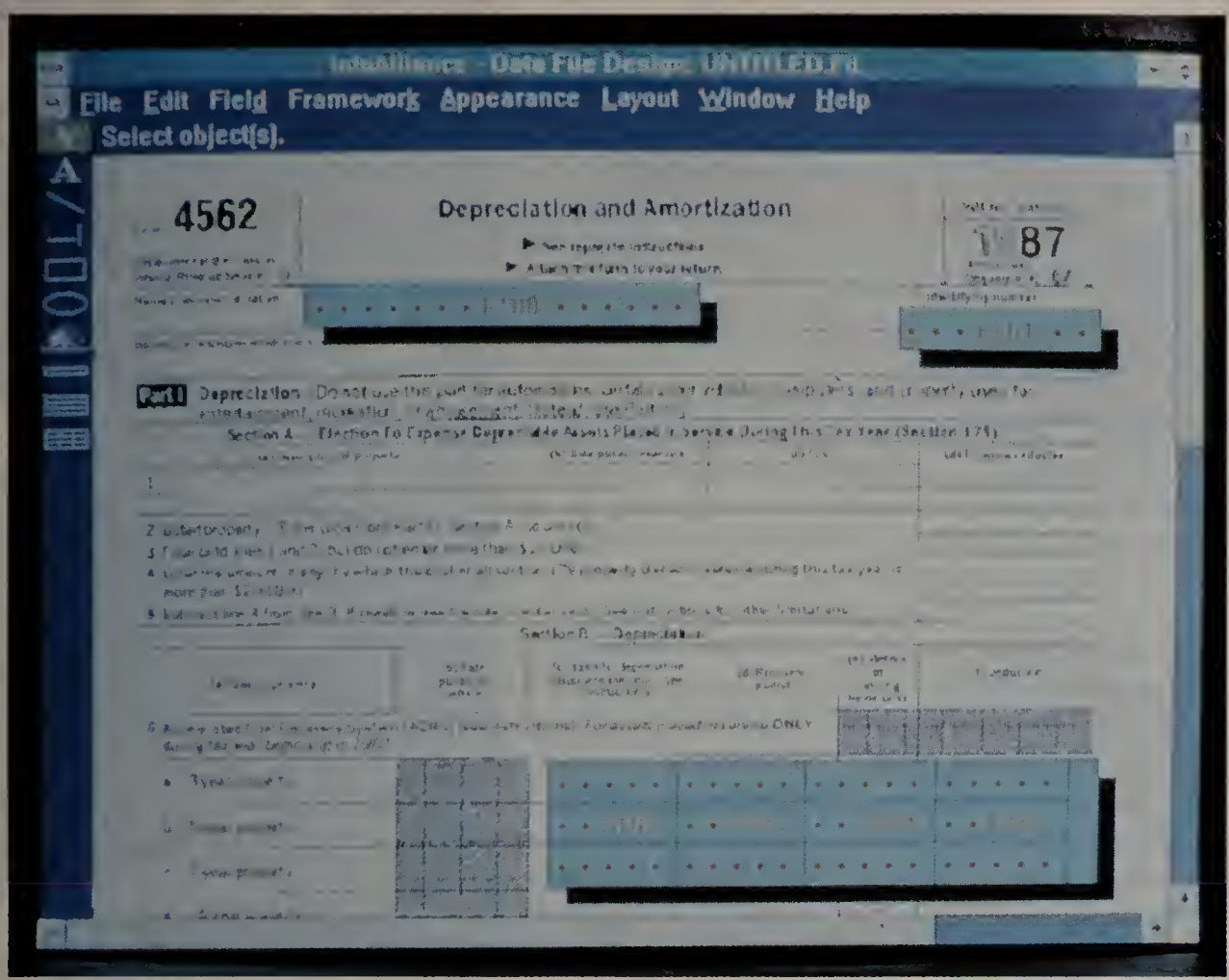
InfoAlliance: All Together Now

A Presentation Manager front end to SQL and dBASE data, Software Publishing's InfoAlliance breaks new ground in distributed data management.



InfoAlliance is based on a slick forms designer that lets you scan in a paper form to use as a template on screen. One form can draw data from multiple forms and data sources.

Eric Brown

Big problems call for big solutions. Corporate decision making often raises two thorny problems: how to open up disparate, far-flung corporate data to nontechnical managers, and how to let them create applications that use that data to help them make good decisions. The solution to both problems, says Software Publishing, is *InfoAlliance*—an ambitious data manager for OS/2 Presentation Manager that is also the first to be built from scratch as a client-server application.

Like *Paradox SQL Link* and *DataEase SQL*, *InfoAlliance* provides front-end access to SQL data servers. In the initial release, *InfoAlliance* is limited to *IBM Extended Edition Database Server*, but future offerings, expected in mid-1991, will include access to *SQL Server* and IBM DB2 mainframe data. (A front end for *Windows* is also in the works for mid-1991.)

Unlike other front ends, *InfoAlliance* can directly read and write dBASE data and manipulate it via a client-server model. And while *InfoAlliance* can stand on its own as a relational data manager, what makes it unique is its ability to integrate data of multiple types and from various sources. You can thus spread SQL and dBASE data around the office, distribute processing and storage chores, and provide peer-to-peer access.

Moreover, *InfoAlliance* offers an impressive graphical front end, with user tools such as querying, forms design, report generation, and application generation. The pulldown menu interface is chock-full of the latest tricks, including icon ribbons and visual thumbnail examples.

Fortune 500 Pricing

InfoAlliance is aimed at true-blue Fortune 500 companies that want to phase out some minicomputers and mainframes and offload data onto SQL data servers. Such companies want to start fresh with a unified approach to accessing corporate data—and they're ready to pay big money to do it.

How big? You'll pay $23,500 for 35 users (about $671 a user) or $99,500 for 200 users ($497 a user). *InfoAlliance* will be sold and serviced in much the same way as *Lotus Notes*, with installation, training, and application-development handholding thrown in. Unlike Lotus, however, Software Publishing will sell only through high-end resellers.

Keep in mind that this is bleeding-edge SQL server territory, and that even with Soft-

SNAPSHOT

InfoAlliance 1.0

A data management front end for SQL and dBASE data, *InfoAlliance* offers a graphical interface plus unique data analysis and peer-to-peer features.

KEY FEATURES

- **Front end to IBM EE Database Server**
- **Directly reads and writes dBASE data**
- **Peer-to-peer distributed processing and storage**
- **Complete forms design and querying**
- **Report writer and applications generator**

AVAILABILITY

September

PRICING

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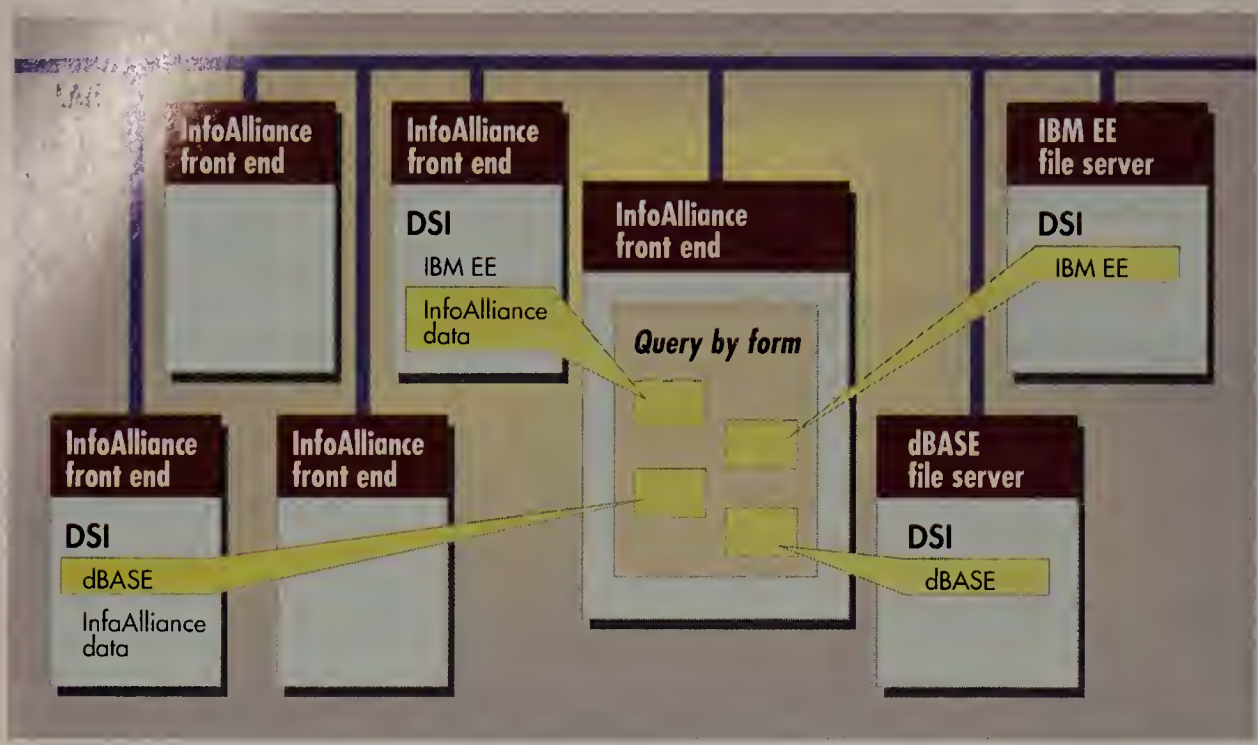
InfoAlliance: Multisource Data Retrieval



A single InfoAlliance form, such as the one shown in the accompanying screen shot, can pull data from as many as ten sources and three data types—InfoAlliance, dBASE, and IBM EE Database Server. The back-end DSI module must be located on the PCs where the data is stored.

ware Publishing's help, you'll probably need special expertise to set up the entire system. Hardware requirements are also ambitious—depending on the configuration, you'll need 6MB to 8MB per PC, and only 386 machines need apply.

Peer-to-Peer Power

InfoAlliance is split into client front-end and server back-end modules. When you query an IBM SQL data base, the back-end Data Source Integrator (DSI) acts as a middleman, translating the request while leaving the processing to the IBM server. When accessing dBASE, however, the DSI takes charge, reading and writing the DBF files directly with its native SQL dialect.

The DSI can sit on as many as ten PCs per network. Once it is loaded, that PC can also be used for local storage. Any query issued from any workstation can join data from all ten DSI data bases into a single form, freely mixing *InfoAlliance*, dBASE, and IBM server data. This capability means it's easier to offload server tasks to another machine and to share data between users.

InfoAlliance offers its own security, transactional rollback, and locking procedures for accessing dBASE or native data, but it bows to IBM's security tricks when accessing IBM server data. Also, administrators can snoop on network usage, to see who's working on what files, and when. This is good news for network analysis but bad news for privacy.

When you bring up *InfoAlliance* as an end user, you can access any table (remote or local) to which you have security access. You don't need to know where the data resides; simply select an authorized table from a list and start querying.

Good Looks, Cool Queries

At the heart of *InfoAlliance* is a hotshot forms designer that lets you scan in paper forms, create electronic forms with corresponding fields, and then print out the forms. You get most of the bells and whistles of stand-alone forms programs, including fill patterns and mixed fonts. There's no PM metafile clipboard support yet, but you can import PCX and TIFF images and export to *Harvard Graphics*. You can also import ASCII, *Professional File*, and *1-2-3* data. *InfoAlliance* supports memo fields up to 32K but lacks support for image fields.

Querying is even easier to grasp than *Paradox*'s query by example. To create a query, you work with the actual paperlike form. Use the mouse to select the fields to query, and they appear in a pop-up box. You can then click on the icons to open other dialog boxes that let you add calculated fields and operators from scrollable lists. *InfoAlliance* translates the query into SQL and returns the answer in a quick report. You can also put together more detailed reponses with a full-blown report generator that provides an outliner and the same visual field-selection method used with queries. And you can choose from canned formats and extensive font, line, and color formatting options.

The program is fully relational except that it can't perform certain set-division operations. It offers a few tricks that make linking files easier: Each form can pull data from other forms, and you can set up a multivalue group, which links on several related multivalue fields. These values are then treated as a single unit and related to other tables en masse. For example, on an invoice you may want to group part number, unit price, and description so that they appear together whenever you do a search or sort on one item.

In addition, you can set up nested views, which allow you to easily see the data behind linkages. In a traditional DBMS, the user can see the contents of the related field, but not the data that surrounds the field. With *InfoAlliance*, you can set up custom views that let you see the surrounding data and jump from table to table in a *HyperCard*-like manner, with each view appearing as a separate overlapping window.

Beating the Backlog

InfoAlliance includes an applications generator that allows users to patch together applications based on existing reports, queries, and forms. You can easily whip up an interface by selecting radio buttons, dialog boxes, check boxes, and pulldown menus, and you can quickly test and debug applications. Yet there's no procedural language that programmers can tap. Moreover, the generator begets no code that you can modify, and you can't write SQL applications or issue SQL commands interactively.

InfoAlliance is a big solution for a big task. If you're willing to provide a total commitment to change, this data integrator looks like it will pay off big-time.

Eric Brown is a senior associate editor for PC World.

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"It is, I believe, the best accounting package available for the price."–E.J. Bosmeny, CPA, Naperville, IL

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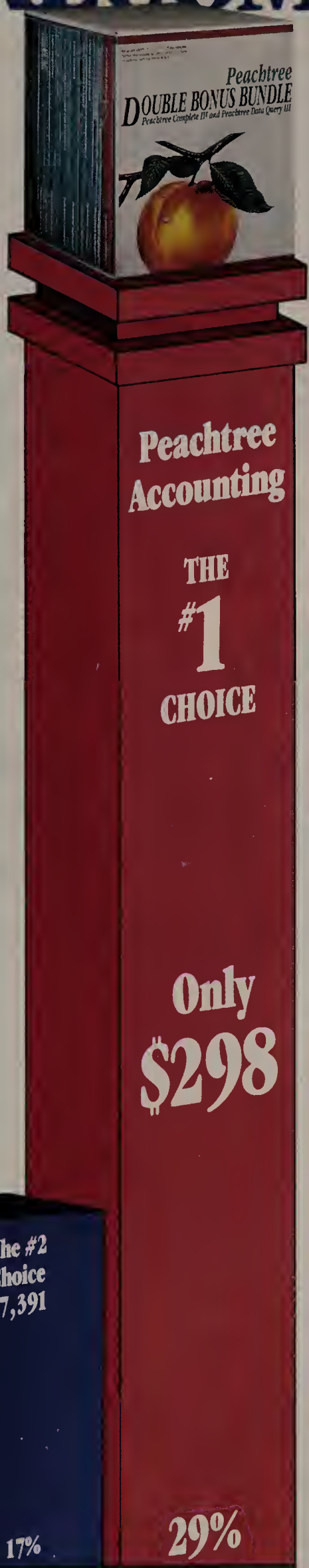

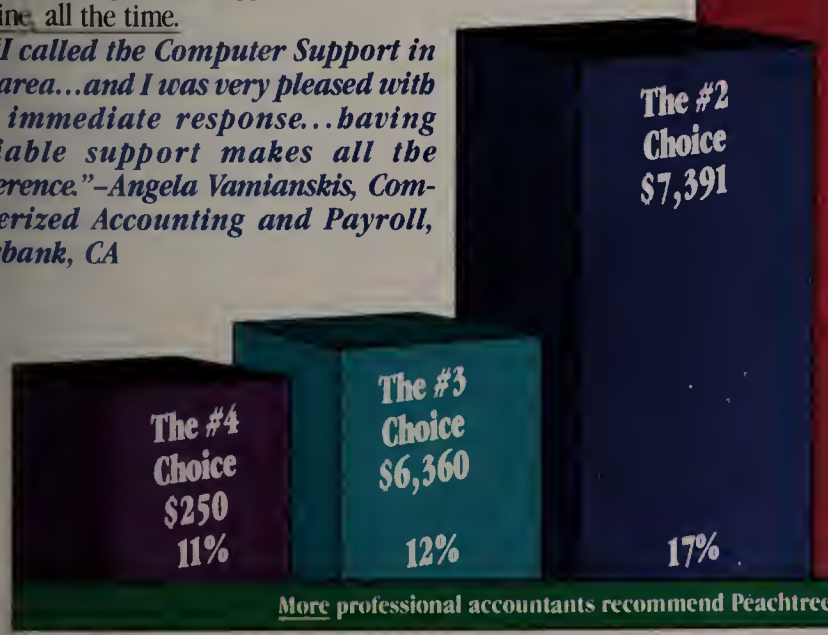

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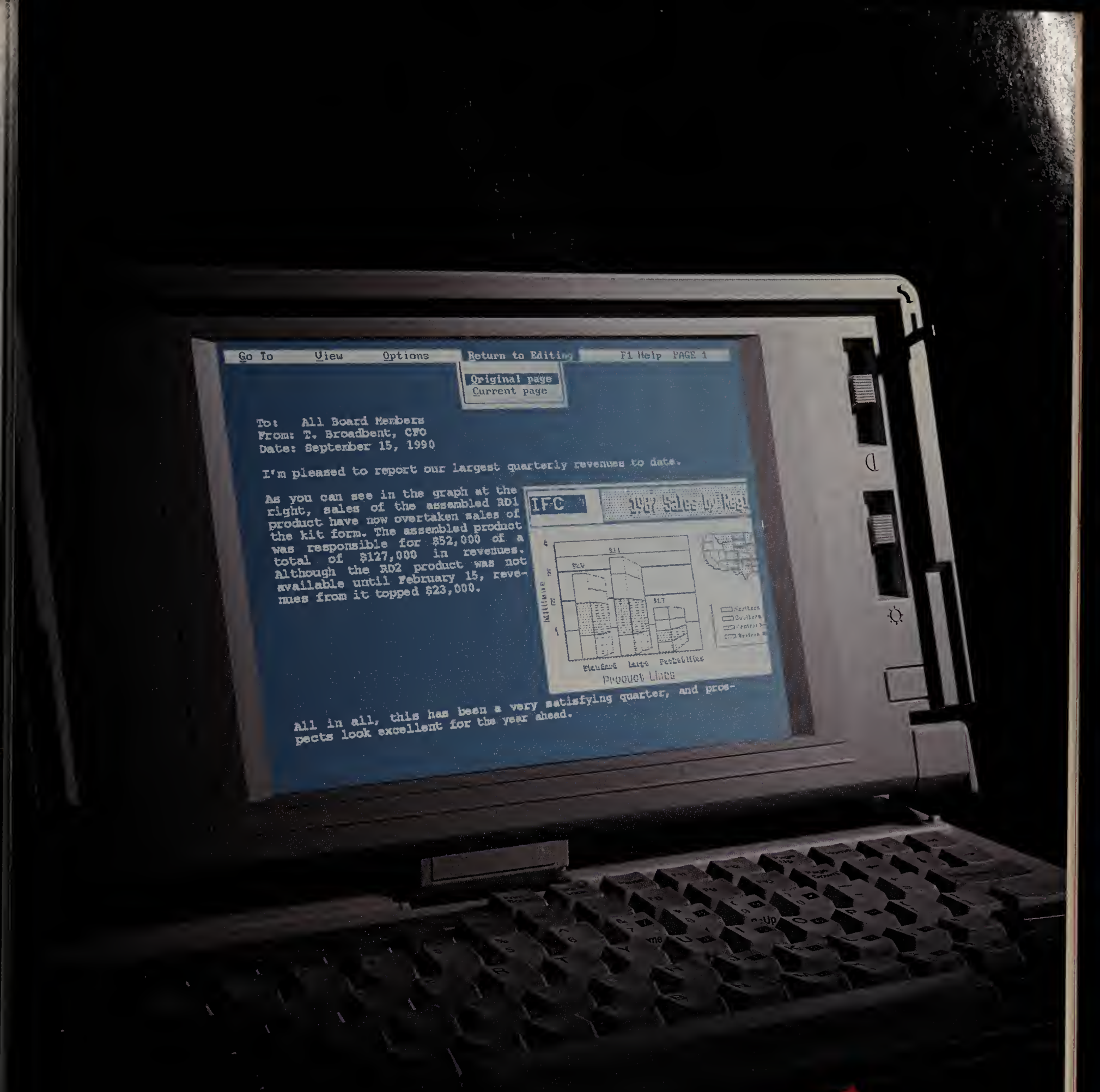

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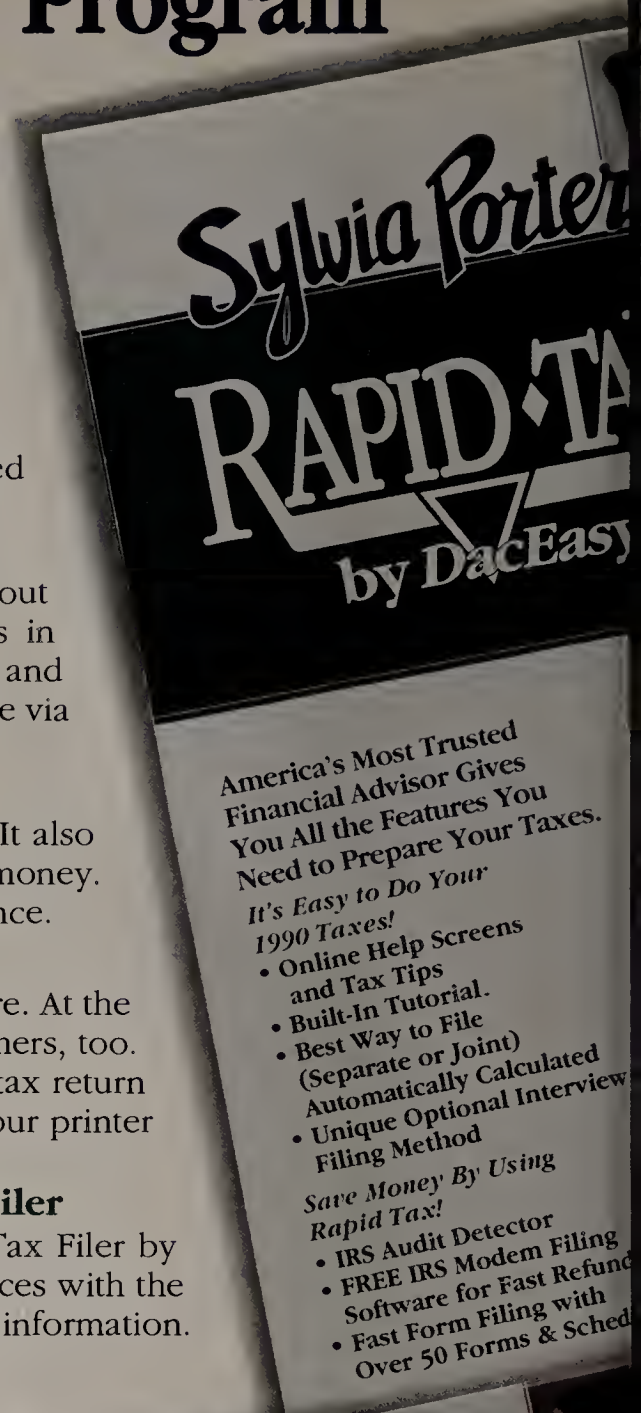

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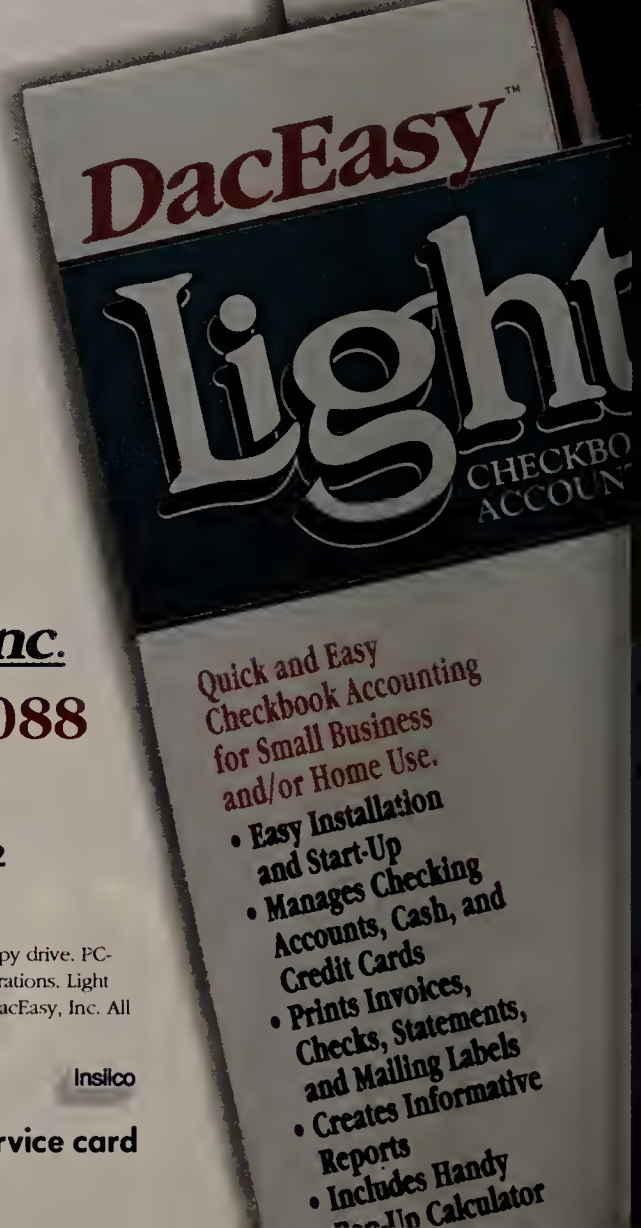

Minimum Hardware Requirements: Sylvia Porter's RapidTax requires 512K memory. IBM or compatibles. One hard drive and one floppy drive. PC-DOS or MS-DOS 2.1 or higher. 80 column printer. For use in U.S. only. IBM, PC-DOS and MS-DOS are trademarks of their respective corporations. Light and RapidTax are trademarks of DacEasy, Inc. • 17950 Preston Rd. • Suite 800, Dallas, TX • 75252. • 1-800-877-8088 © Copyright 1990 DacEasy, Inc. All rights reserved

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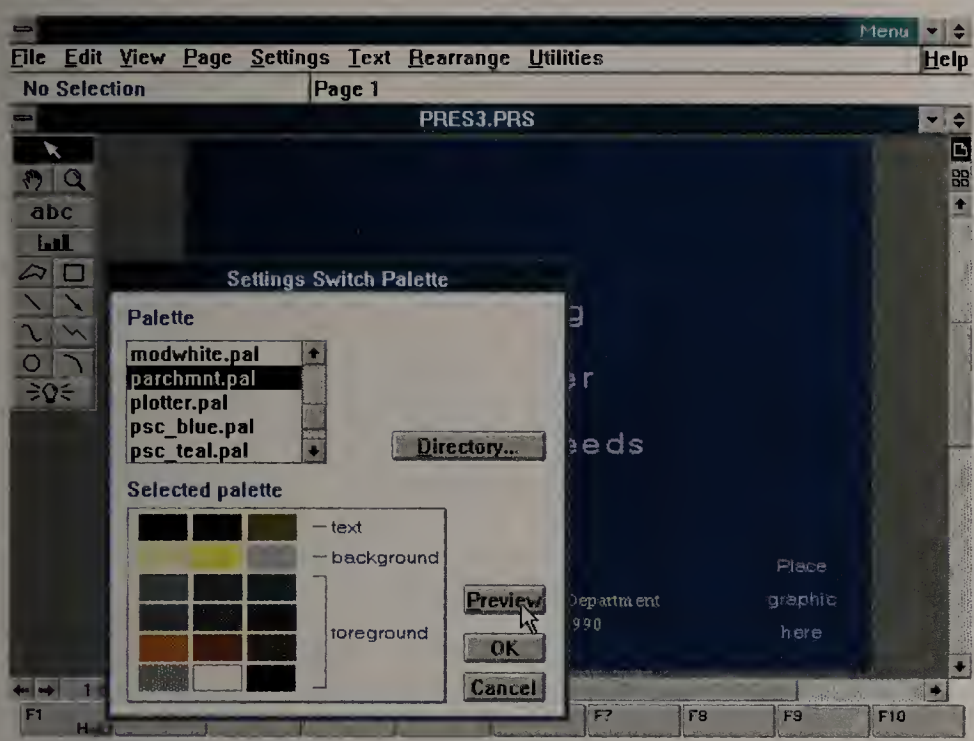
Freelance Masters OS/2

Lotus's impressive new graphics contender offers powerful links to 1-2-3/G as well as global controls over presentations.



Freelance Graphics includes professionally designed palettes made up of colors that go well together. You can select the palettes from a menu and preview how they will look.

John Walkenbach

If you're serious about presentations, Lotus's new *Freelance Graphics for OS/2* makes a serious argument in OS/2's favor.

While the OS/2 edition has practically nothing in common with its DOS namesake, it's easy to learn. And the slick Presentation Manager interface makes *Freelance Graphics* a joy to use. Choice of output is a concern, however. At this writing, OS/2 lacks drivers for 35mm slides, so you're limited to paper printouts.

Global Mastery

Like Microsoft's *Windows*-based *PowerPoint*, *Freelance Graphics* is strong on global presentation controls. Both programs save an entire presentation in a single file and use a "master page" concept to place backgrounds and common objects on all images. To this feature *Freelance Graphics* adds *master sets*—groups of preformatted, design-coordinated templates made for common setups such as title pages and graphs. *Freelance* comes with about 30 master sets, and it's simple to create your own. You can assign 1 of 16 professionally designed color palettes to a presentation.

The ability to edit text or objects across an entire set of images is a particularly powerful feature. You can select an object such as a text chart title and request that the program select all similar objects. You can also open up to 16 presentations or windows at a time (memory permitting) and easily cut and paste between them.

In addition, you get a handy, light table–like page sorter, a superb zoom command, the facility to generate handouts, and standard word processing features, including a pop-up ruler bar and alignment icons. *Freelance* handles text chores well, but it lacks text outlining capabilities and can't produce drop-shadow text.

A Close Kin to 1-2-3/G

Freelance Graphics is a natural complement to Lotus's *1-2-3/G* spreadsheet—they even share the same graph tool. You can open a *Freelance* file from *1-2-3/G* by selecting the presentation tool, or open a spreadsheet from *Freelance* by selecting the worksheet tool. This resource sharing gives you powerful links among spreadsheet data, graphs, and presentations.

The graph tool provides a spreadsheetlike data entry window. Alternatively, you can hot link to a *1-2-3/G* worksheet. Double-click on an imported graph, and *1-2-3/G* pops up with the appropriate file.

Drawing tools extend well beyond the modest set provided with *PowerPoint*. You can manipulate Bézier curves and flip, rotate, and align objects and text, as well as specify graduated shading for any object. And the 20-level undo command should assuage any fears concerning creative experimentation.

Freelance Graphics' 500-image clip-art library displays thumbnail images in a dialog box. You're limited to importing CGM, TIFF, *Freelance Plus* DRW files, and whatever comes through on the PM Clipboard. The screen-show option is rather mundane, lacking fancy screen transition options or the slick hypertext features found in *Harvard Graphics*.

If you're looking for a high-powered, easy-to-use presentation graphics system, *Freelance Graphics* may lure you to the OS/2 fold. Wait, though, until OS/2 drivers for 35mm slide makers arrive.

John Walkenbach is a contributing editor for PC World.

SNAPSHOT

Freelance Graphics for OS/2

Lotus's powerful presentation graphics system is tightly integrated with 1-2-3/G.

KEY FEATURES

- **Extensive global presentation controls**
- **Hot links graphs to 1-2-3/G data**
- **Flexible, design-coordinated "master set" templates**
- **Strong drawing tools**

AVAILABILITY

Fourth quarter 1990

PRICING

Not available at press time

Lotus Development Corp.
55 Cambridge Pkwy.
Cambridge, MA 02142
800/343-5414

Reader service no. 740

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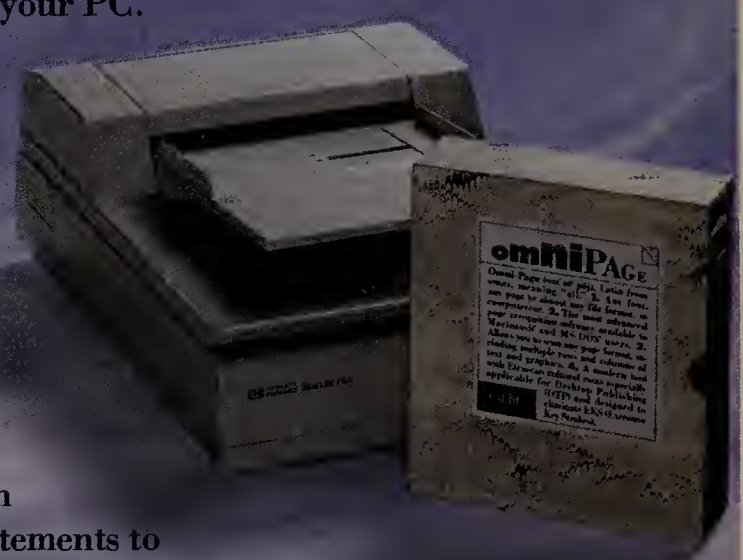

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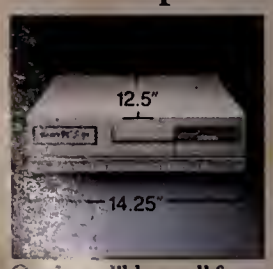

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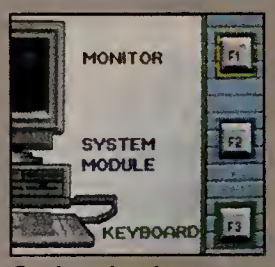

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Windows Lite

Stuck with an XT but yearning for Windows action? Geos is a fast, easier-to-use graphical environment that may even win over 386 power users.

Geos looks a lot like Windows 3.0—icons represent programs, windows overlap, and most of the same conventions apply to using the mouse and manipulating windows.

Robert Luhn

Does the PC world need yet another operating environment? If you're stuck with a desktop or laptop computer built around an 8088, 8086, or slow 80286 processor, the answer might be a resounding "Yes!" In spite of Microsoft's claims, *Windows 3.0* is a pretty sluggish solution for these machines.

Of course, if you want programs that share the same set of commands—or you simply need to juggle several off-the-shelf DOS applications at once—you could turn to solutions like *Microsoft Works* or *Desqview*. But with the former you're stuck with a rigid set of applications, and the latter is definitely ungraphical. That's where *GeoWorks Ensemble*, a graphical operating environment and application suite from GeoWorks, comes in.

The *Geos* environment sports a simplified (but sharper-looking) *Windows*-like interface with many of the same features, comes with *Ensemble* (a bigger and more capable suite of applications), and runs lickety-split on 80286s and XTs.

The key to *Geos*'s speed is a "preemptive" multitasking scheme similar to OS/2's. Unlike *Windows*, which doles out processor time in fixed increments to applications whether or not they need it, *Geos* allocates resources only to programs that are actually doing something. As a result, multitasking is faster and more efficient. The only drawback: *Geos* can't multitask DOS applications. To run *WordPerfect*, for example, you must temporarily exit *Geos*.

Of course, the $64,000 question is, Will anyone develop for *Geos?* The environment is open to all comers. Given the millions of underpowered XTs and ATs, *Geos* seems like a natural. But unless Lotus, WordPerfect, or other heavyweights write *Geos*-specific programs, the environment will be like a race car without any gas (see the sidebar "Long, Uphill Road for Geos").

Touring the Works

Geos was built on the solid foundation laid by *Windows*. After a similar menu-driven installation, you're greeted by a welcome screen studded with three icons. Click the DOS icon, and you can temporarily exit *Geos* to run a DOS program. Click the Software Appliances icon, and you're escorted to a simple desktop with four very basic programs: a calculator, Rolodex, appointment book, and notepad.

Click the Professional Workspace icon, however, and *Geos* blossoms into a colorful, mouse-driven *Windows*-style desktop with some welcome improvements. You get the familiar pulldown menus (and a wad of keyboard commands), plus icons representing programs. Most of *Windows*' conventions also are here: You load programs by clicking icons, run them in overlapping

SNAPSHOT

GeoWorks Ensemble

This alternative to *Windows* for AT and XT users is fast, visually appealing, and includes many useful programs.

KEY FEATURES

- **Razor-sharp 3-D interface**
- **Fast, smooth multitasking**
- **Suite of Ensemble applications**
- **On-the-fly font scaling, nine font outlines, and sharp dot matrix output**

AVAILABILITY

Fourth quarter 1990

PRICING

$195

GeoWorks
2150 Shattuck Ave.
Berkeley, CA 94704
415/644-0883,
415/644-0928 (fax)

Reader service no. 695

LONG, UPHILL ROAD FOR GEOS

Roberta Furger

There's been na shortage af praise far Geas, the new operating enviranment fram GeaWarks of Berkeley, Califarnia. It's fast, full featured, and intuitive enaugh that a navice can begin using the system praductively in no time.

That may sound like a winning combinatian, but technical kudas alane won't make the product a success. "The real test is whether there will be develapers who create campelling applications for Geos," says Jeffrey Tarter, publisher af *Soft-letter* in Watertawn, Massachusetts.

GeoWorks CEO Brian Dougherty is looking for a few good applications.

Geos and its *Ensemble* applications suite (sald tagether as GeoWarks *Ensemble*) had a shot at the big time earlier this year when GeaWorks executives were negatiating with IBM to get the saftware bundled with the PS/1 home computer. At that time the product wasn't finished, and Microsoft won out with its Warks integrated package. Big Blue did give a nod to the technalagy, thaugh, including *Pramenade* as part of the PS/1 package: The communications saftware is based on Geas and co-develaped by GeoWarks and Quantum Computer Services.

A Mass-Market Solution?

Amang smaller PC makers, the environment has wan some early success. Haping to capitalize on IBM's reentry inta the hame market, several campanies are intraducing similarly configured law-end systems that include GeaWarks *Ensemble* as part of their plug-and-play salutian.

"For us it wasn't sa much an issue af perfarmance as ease af use," says Mike Wagner, marketing directar af Laser Computers in Lake Zurich, Illinais, which bundles GeoWorks *Ensemble* with its Laser Pal 286 systems. "Windaws 3.0 seems simple, but with all the optians it can be quite canfusing for the first-time user."

GeoWorks is naw talking with a number af major suppliers, including laptop maker Grid Systems of Fremont, Califarnia, which is evaluating the saftware primarily because of its ability ta run on law-powered systems.

Wanted: A Few Good Programs

While they wan't guarantee Geos's future, hardware bundling arrangements "may raise the camfart level for develapers," says Tarter. However, na major saftware develapers to date have committed ta writing far the environment.

GeoWorks CEO Brian Daugherty says he's focused an working with a few key developers rather than generating widespread third-party suppart. In particular, the company hopes ta round out the suite of available applicatians with a third-party data base and spreadsheet.

"We're not really in the positian ta suppart a lat af develapers right now," says Daugherty. A full set af development tools wan't be available until the first quarter af 1991. When those appear, they shauld make Geos applicatians substantially easier to create than *DeskMate* ar *Windows* packages, GeoWorks claims. The campany also plans to offer run-time versions so that saftware vendars needn't ask their customers to buy the full environment.

A Windows Complement?

Comparisans between Geos and Windows are inevitable, but GeaWorks afficials try to steer clear af any head-ta-head confrontation with Microsoft. "It's a complementary product ta Windows, not a campetitar," Dougherty says of Geas.

Over the short term, however, he acknowledges that the product may make its way into Windaws territary. Several corparatians have expressed an interest in Geos as a user interface for XT-level systems.

"That's nat a long-term business for us, though," Daugherty says. "The real facus is ta pravide a superiar salution for small- and medium-sized businesses and the home and educatian markets—areas nat addressed by Windows."

Saft-letter's Tarter believes that's a smart strategy that will succeed. "It's an exciting enviranment," he says. "It delivers something that makes a lat af sense."

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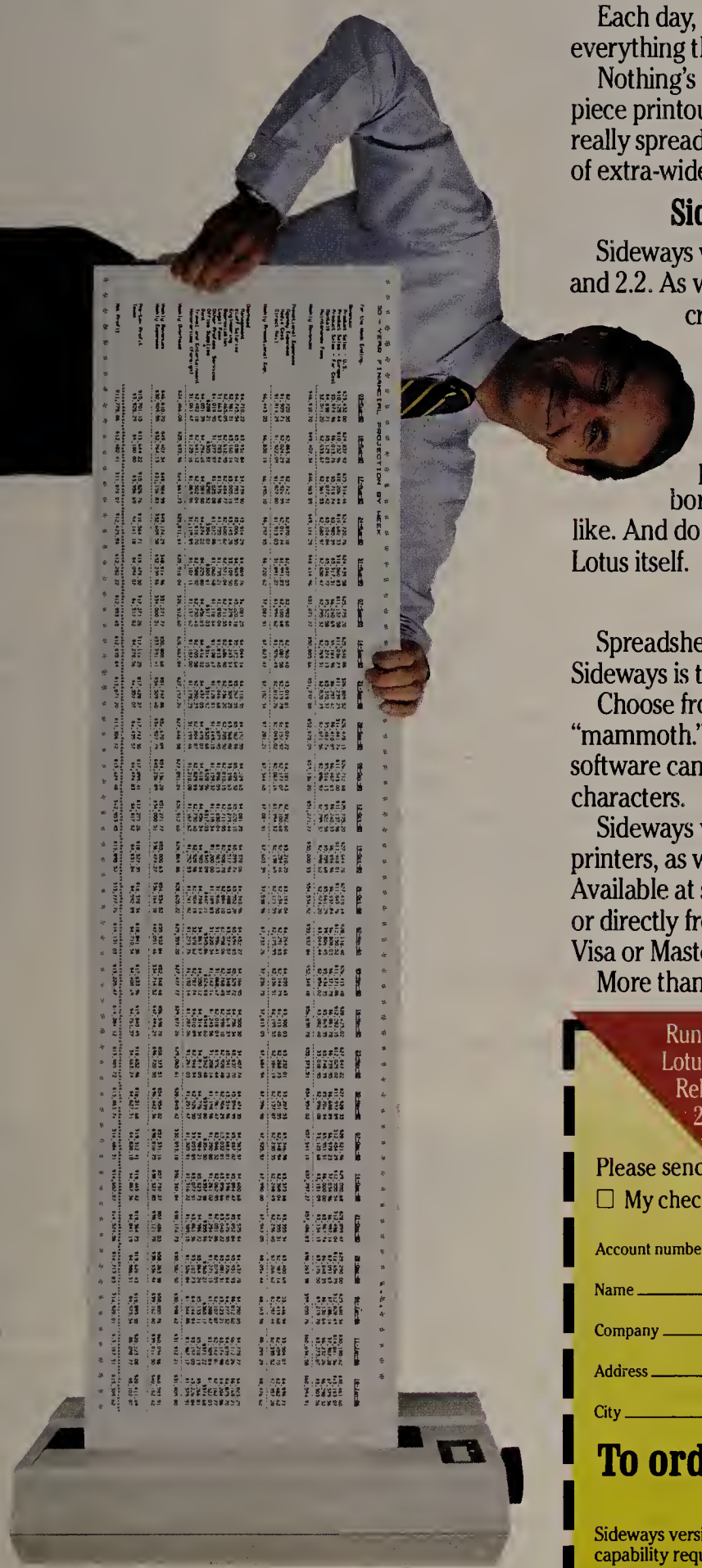

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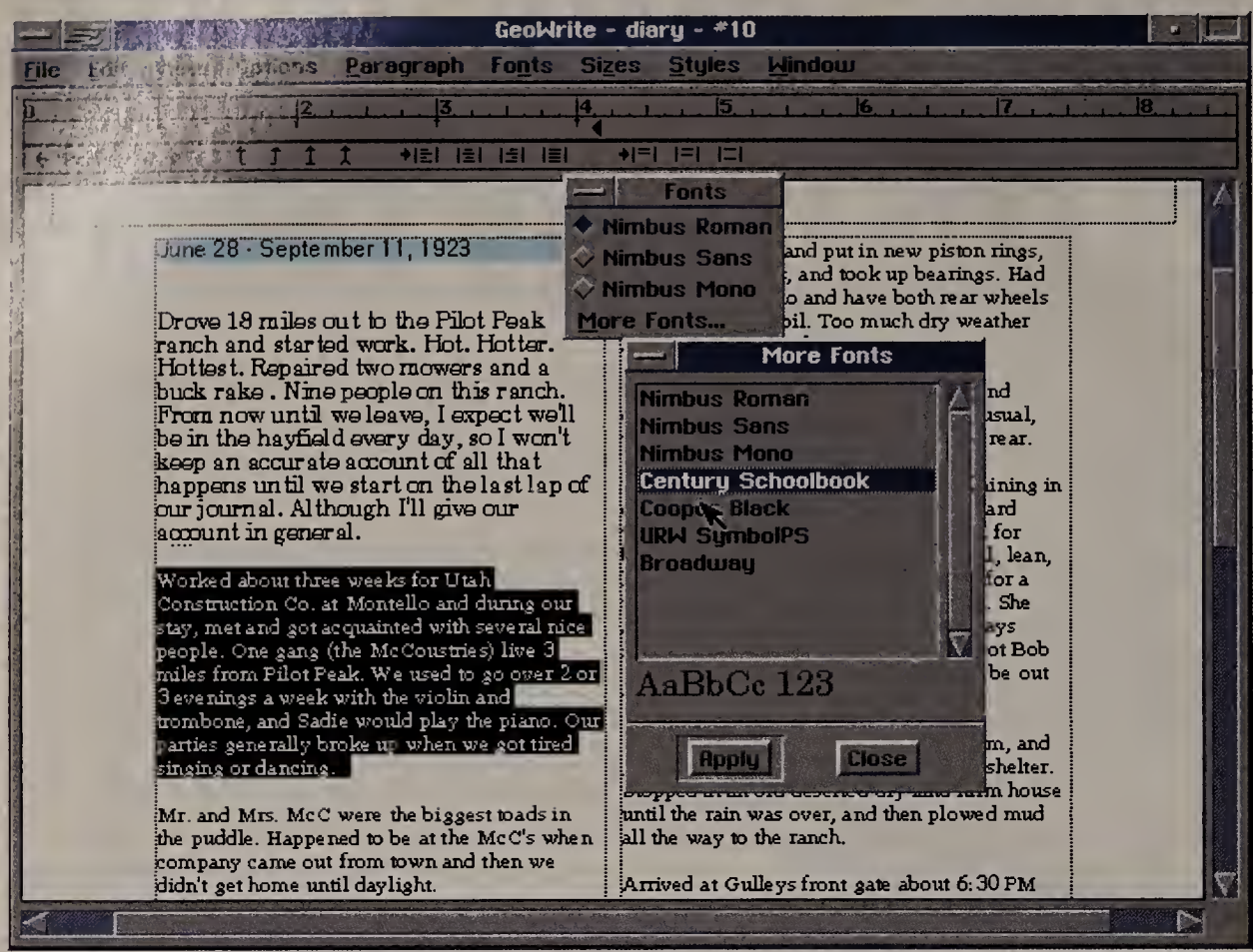


GeoWrite isn't WordPerfect, but it's a snap to use and offers fast, on-the-fly font scaling. Just select the text, pop open a menu (which can be moved around the screen), and select font and point size.

windows, and size windows by grabbing a border and yanking. Data is cut and pasted with a clipboard, and if you need to switch to another program, just open the Express menu and choose from a list of active programs. You can also view directories in *Xtree* form or as Macintosh-style folders. Copy, move, and delete files simply by dragging their icons to the proper destination.

But unlike in *Windows*, application icons sit on the opening desktop while data file icons (representing documents, worksheets, and so on) are stored on another desktop. You switch between the two by clicking an icon, and you can load a program by clicking its data file icon. You can also "tear off" menus and keep them nearby for easy access. *Geos* will even remember which programs you had open during the last session and restore them to the desktop the next time. Want to print a file without running a program? Drag the file to the printer icon and presto—it's done.

Unfortunately, you can't hot link data between current programs in *Geos* as you can in *Windows*, but the ability is built-in and may eventually be tapped. In fact, if you highlight a name in the calendar and select a command, the relevant card from the Rolodex program is displayed.

Tools for the Traveler?

Even if third-party developers don't write for *Geos*, the company's *Ensemble* applications may lure you to the fold, especially if you use a laptop. The *Ensemble* menagerie includes a word processor, draw package, communications program, Rolodex, and calendar. Some of the notables:

- *GeoWrite* doesn't give you style sheets, macros, or facile graphics manipulation, but it is a workhorse. Setting tabs, margins, spacing, and justification is simply a matter of moving elements in an on-screen ruler. Open a menu, and you can change a document to a multicolumn format, alter leading and character spacing, or add colors and borders with a single click. Graphics integration is where the program stumbles: To insert a TIFF image, you must bring it into *GeoDraw* and then cut and paste it into your document; there are no controls for wrapping text around the image.

But on-the-fly font scaling is the big story: *GeoWrite* includes nine URW scalable typefaces, from Cooper Black to Schoolbook, rendered beautifully on screen and especially when output on a dot matrix printer. The company will eventually offer other fonts; *Geos* can also use Bitstream font outlines.

- *GeoDraw* lets you flip and rotate images and text in fixed increments, add shades and tones, and more. Text entry, a pain in almost all draw programs, is a breeze here. You enter text in an on-screen box that expands downward as you type; you can change fonts, colors, and other variables at any time. The program can also import PCX and TIFF images, but it lacks an undo command.

- If there's anything a laptop user needs, it's a simple but capable communications program. Unfortunately, *GeoComm* lacks even a central dialing directory. Logging on means running a script—and yet there's no learn mode for recording new scripts, and writing one isn't exactly intuitive.

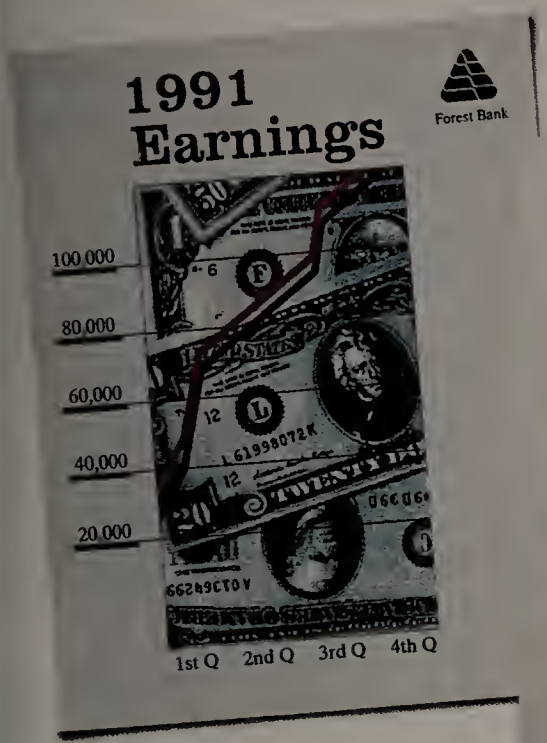
- Need more than an electronic Day-Timer but less than a personal information manager? *GeoPlanner* gives you a good mix of flexibility and simplicity. Click on a day in the calendar, and appointments appear in a separate window. You can easily add recurring appointments, set alarms, search for entries, and even change the intervals an hour is divided into. It's obvious and intuitive—the way a planner should be.

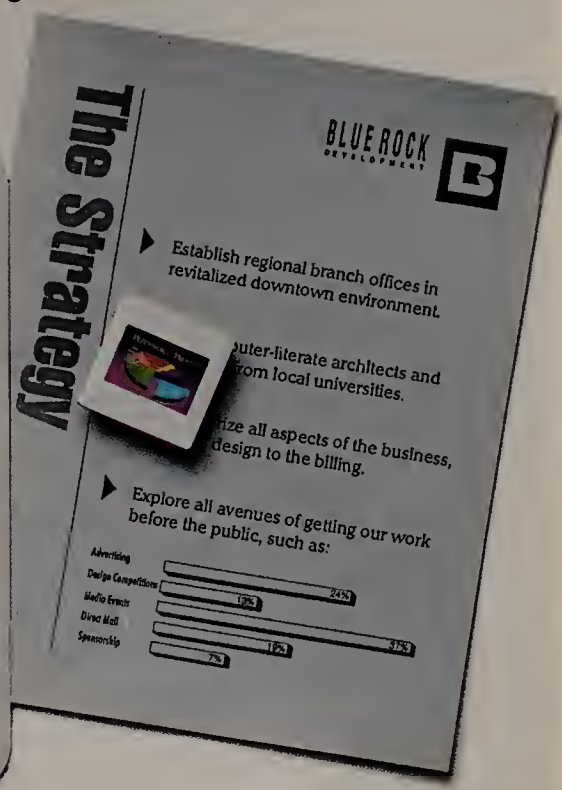
Geos could be the biggest thing since Windows.

By and large, *Geos* lives up to this intuitive standard, but the lack of a spreadsheet or useful communications program may give laptop users pause. If GeoWorks takes care of these flaws—and major developers sign on—*Geos* could be the biggest thing since *Windows*.

Robert Luhn is a senior editor and Roberta Furger an associate editor for PC World.

Applause.





Bravos. Cheers. Hurrahs.

We found APPLAUSE II to be easier to work with than either Harvard Graphics or Freelance Plus, and faster than the Windows-based products.

INFOWORLD
JUNE 11, 1990

APPLAUSE II handles charting, drawing, and on-screen presentations with a fluidity and ease-of-use not found in either Harvard Graphics or Freelance Plus—and it does all this in a mere 512K.

PC MAGAZINE MARCH 13, 1990

PC/COMPUTING APRIL 1, 1990

It's graphical. It's interactive. It makes excellent use of the mouse. Best of all, it abandons the stodgy fill-in-the-form approach to creating charts that is used by Freelance, Harvard and 35mm Express.

The critics are raving about its ease-of-use and intuitive "Windows"-like interface. And how APPLAUSE II™ turns data into 37 different chart types automatically. In black and white or 3.6 million colors. Creating everything from dazzling overheads, slides and on-screen presentations to high-impact hard copy.

To find out more, call 1-800-437-4329 ext. 1308 for a free video and eye-opening demonstration disk.*

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The IBM AS/400 advantage:

If entrepreneurs have one thing in common, it's too many late nights. And if there's a reason for that, it's too many wasted days.

But with an IBM AS/400,™ you could work more effectively and maybe drive home with your headlights off.

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Like you, AS/400 software specializes. Retailers, manufacturers, wholesalers, car dealers, bankers, hospital administrators, stockbrokers, law firms, you name it, can all find proven AS/400 applications that fit their special needs.

What's more, a single AS/400 can connect up to hundreds of users (including people with PCs or on PC LANs) so they can share its advanced relational data base.

Which means your people will make smarter

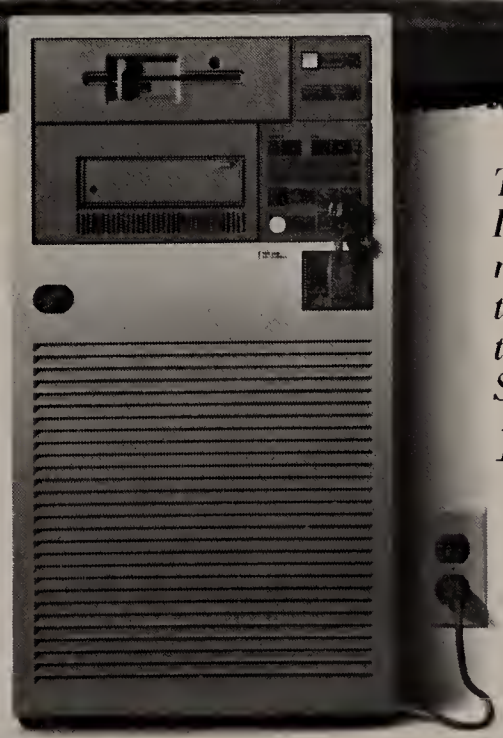
ght an AS/400, my wife started
ier evenings with a stranger. Me."

sions, working more like a team, getting
e things done right the first time, so *your* day
be done a little sooner.

And since it's a notably easy system to learn,
won't lose much time to the training process,
er.

All of which helps to explain why, in a recent
vey of midrange system owners,* the AS/400
ers said they were the happiest.

Apparently, it's easier to like what you do all
when you don't have to be there all night.



The AS/400 Model C10 is just over 2 feet tall.

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"Now I'm organized. And

"My New Year's resolution for the past three years running has been to better organize my 12-hour day. Somehow, I've never found the time or the right system to help me follow through. But my boss finally forced my hand. He asked me, along with three other department heads, to give The Manager's Organizer ™ software a try. It worked and the process was painless."

Richard Thomas, Sales Manager and PC user

Day One. Time Organizer.

I decided not to change all my evil ways at once, so I took the key program tools a day at a time. The Time Organizer seemed an easy place to start. I entered all my appointments for the week and handed a neatly-printed copy to my Assistant in about 10 minutes. My people were both shocked and pleased to know where to find me for a change.

- **Reminders** keeps track of all the things you need to remember.
- **Appointments** organizes your daily schedule with important notes attached.
- **Follow-Ups** lists your projects in order of your priority and records who's responsible for what, when.
- **Time Summary** reminds you of critical milestones such as performance reviews, product shipment dates, and even your own anniversary.

Day Two. Business Card File.

An electronic rolodex was an intriguing idea, but honestly sounded time-consuming. Now that I've made the initial effort to weed out my paper card file and organize it into stacks of employees, customers, suppliers, contacts and personal friends, the rest seems simple.
I can sort the electronic cards with a few keystrokes to print mailing labels, generate personalized form letters..and on and on.

- A fast, flexible database of employees, clients, customers, contacts, family
- Sorts and prints your address book, telephone list and complete personal or business records by any number of characteristics
- Mailmerge feature lets you create personalized mailings

Day Three. Telephone Log.

As a manager, I probably spend about 60% of my day on the phone. Keeping track of my conversations is a burden I was happy to turn over to the computer. Now I'll just pop into The Manager's Organizer whenever the phone rings, make a few brief notes in the appropriate "file" and pop back out to my spreadsheet, or whatever. My "peripheral brain" has a much better memory than I do, so I should sound consistently well informed.

- Provides an up-to-the-minute record of who called, when and why
- Auto-dialer makes call-returns quick and easy
- Notepad lets you take telephone "meeting minutes" for instant recall and accurate follow-ups

Day Four. Personnel Manager.

My favorite job—managing people. Only my company has so much employee "red tape," I'm constantly buried in a pile of paperwork. Luckily, The Manager's Organizer's Personnel Manager seems to be its strongest tool. For the first time in years, I'll actually be more prepared than my staff for their annual reviews with full details of their records at my fingertips—highlights of the most recent personnel reviews, compensation plans, long and short-term career objectives, actual performance versus objective, down to their scheduled vacation time and sick days. And I'm ready to tackle what used to be a week-long process of fine-tuning my departmental salary budget. The Manager's Organizer lets me try endless scenarios without so much as touching a calculator or a spreadsheet.

- Organizes employee information in an easy-to-use, instantly accessible format—goals and objectives, performance reviews, compensation, job descriptions
- Schedules and tracks vacation time to help plan staffing needs
- Password protected to keep it confidential

the process was painless."

Day Five. Expense Reports.

I'm a procrastinator. Couple that with the drudgery of filing a monthly expense report and you should know that I cheered The Manager's Organizer. It does all the hard work for me and generates a report the business office accepts because it's IRS-approved.

- Enter a stack of receipts at random —The Manager's Organizer does the rest
- Automatically sorts by date, customer, client, category (i.e.,travel, meals)
- Accurately totals by columns and rows
- Conventional and IRS-approved report formats

Day Six. Automobile Log.

I use my personal car for business travel. My company then reimburses me for business miles and expenses. I'm convinced that I lose money on the deal just because I'm too casual with my records. The Manager's Organizer has shown me a new discipline which may actually put money in my pocket.

- Records business travel and mileage
- Calculates YTD mileage and % Business Travel for IRS back-up

Day Seven. Trip Reports.

Often, a handful of people need to hear the results of my meeting in, say, San Francisco. It's a never-ending cycle. Plan. Execute. Follow-up. Trip Reports help me organize the paper chain so necessary details are communicated up, down and sideways. Best yet, the next time I head off for San Francisco, I just pull up trip notes and print a copy with far less last-minute scramble.

- Document the details of your business trip—key people, meeting "minutes," next steps/ follow-up
- Print and distribute a full report to management, co-workers, customers and your own files in minutes

Day Eight. Business Calculator.

Nothing to "set up" with this tool. It was just a pleasure to experiment with. The best part is that it performs the functions of a hand-held business calculator, but the screens and help are written in English. Smart!

- Profit calculator for markup and margin
- Discounted cash flow analysis with net present value and internal rate of return
- Rent/ buy/ lease analysis
- Adjustable rate loans ...and much more.

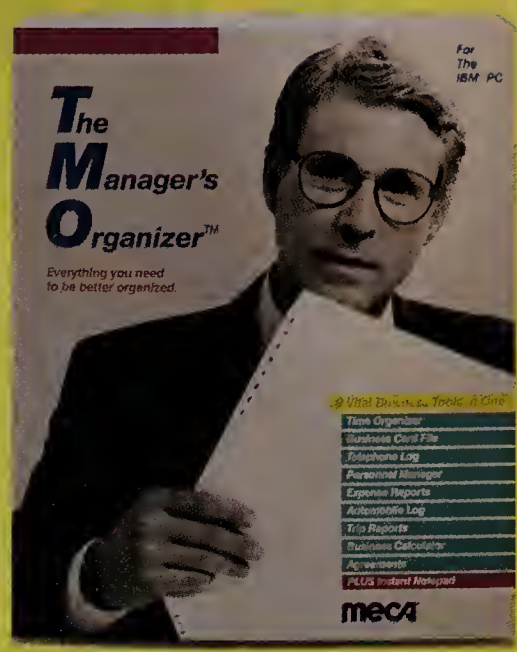
Day Nine. Agreements.

Easy to set up, **Agreements** quickly recaps the exact terms of the latest agreement with a key supplier. "Were we supposed to pay for freight? Or were they?" Now I can keep these records current with the details of "deals" I make in the office and on the road. I'll sleep better at night.

- Keeps track of policies and agreements including current pricing, deals, discounts, and exceptions
- Ideal for monitoring sales programs, incentive plans, and contract terms.

"I'll admit it took a big push to get me started, but just try to wrestle The Manager's Organizer away from me now."

The Manager's Organizer™



The Manager's Organizer gives you all the tools you need to organize tasks, time and people in one place. It manages the sometimes overwhelming number of obligations you currently handle manually or just never seem to handle at all. Importantly, it handles them better.

The Manager's Organizer is unique because it was developed with input from over 10,000 managers from a wide variety of disciplines. We asked for their organizational "wish list"and here's what they told us:

"To be really useful, this program needs to be as easy to use as pencil and paper. It has to include all the tools I need in one place. It must be available instantly without interrupting my work flow, and it has to have just the right combination of structure and flexibility. Most importantly make it simple to use and get rid of the computer jargon."

We created a program which centralizes the huge mass of information you're expected to keep organized, accurate and current—so everything you might be called on to produce at a moment's notice is accessible with a keypress or two.

Then we integrated the most obvious program tools so you never have to enter the same information more than once. For instance, the Time Organizer "talks to" the Business Card File and Employee Records to remind you of key dates—personnel reviews, key project benchmarks, birthdays and anything else you can think of—automatically.

Once we satisfied ourselves, we gave **The Manager's Organizer** back to our 10,000 managers for a real-life, in-depth test. The product you'll use today reflects their extensive feedback and stamp of approval. We hope you'll place the same confidence in it that they do.

SPECIAL FEATURES

- **9 vital tools in one**
- **Pull-down menus for simple navigation**
- **Memory-resident option. Pops up in an instant.**
- **New user tutorial to get you started quickly**
- **On-screen HELP with just a keystroke**

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It'll change the way you work forever.

Requires:
512K IBM® PC or compatibles. 2 disk drives. Hard Disk recommended.
DOS 2.0 or later. Contains both 5.25" and 3.5"versions. Not copy-protected.

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Spreadsheets: A New Lotus for the Next Computer

Lotus's Improv reinvents the spreadsheet with a stunningly simple approach to organizing complex data.

Robert Lauriston

The point of Lotus's *Improv* for the Next Computer isn't that its graphical interface offers flexible formatting and handsome output. You can get that from *Excel* or *Wingz* without trading in your hard-

REORGANIZE COMPLEX SPREADSHEETS WITH A FEW MOUSE CLICKS

Expenses • View1 — Budget-1.wkb

Item | Quarter

	1st Q	2nd Q	3rd Q	4th Q	Total
Budget	$1524	$1655	$1764	$1896	$6839
Actual	$1601	$1645	$1788	$1867	$6901
Variance	5.1%	(0.6%)	1.4%	(1.5%)	4.3%

Expenses

= + − * / ^ : . , () Functions... In Skip This Calc

✓ 1. Variance = (Actual /Budget) - 100% SKIP Total:Variance

✓ 2. Total = sum(:1st Q .. :4th Q)

1. With only two categories defined, Improv looks much like any other spreadsheet—except for the missing row numbers and column letters. Here, column headings are grouped under the 'Quarter' category. Row labels belong to the 'Expenses' category. The two Improv formulas in the lower pane of the window generate all the figures in the 'Variance' row and the 'Total' column.

Expenses • View1 — Budget-2.wkb

Year | Quarter

	1989					1990		
	1st Q	2nd Q	3rd Q	4th Q	Total	1st Q	2nd Q	3rd Q
Production								
Budget	$1524	$1655	$1764	$1896	$6839			
Actual	$1601	$1645	$1788	$1867	$6901			
Variance	5.1%	(0.6%)	1.4%	(1.5%)	4.3%	*Error*	*Error*	*Error*
Sales								
Budget					$0			
Actual					$0			
Variance	*Error*	*Error*	*Error*	*Error*	*Error*	*Error*	*Error*	*Error*
Distribution								
Budget					$0			
Actual					$0			
Variance	*Error*	*Error*	*Error*	*Error*	*Error*	*Error*	*Error*	*Error*

Dept | Expenses

Calc

✓ 1. Variance = (Actual /Budget) - 100% SKIP Total:Variance

✓ 2. Total = sum(:1st Q .. :4th Q)

2. When we add two more categories, 'Year' and 'Dept', Improv automatically replicates the original worksheet structure for each new year and department. The same two formulas, unchanged, calculate variance percentages and totals for the new items. (The variance errors and zero totals result when the formulas find zero values in the new, empty cells.)

ware. The point is that *Improv* reinvents the spreadsheet to reflect how people really work —an advance that eventually will be incorporated into PC software.

All other spreadsheet programs still use the basic design that the original spreadsheet, *VisiCalc,* adapted from paper worksheets—cells in a grid identified by column letters and row numbers. There's no discernible relationship between the column-row coordinates and your data. Consequently, smart spreadsheet users define meaningful range names in order to produce more readable formulas, like @SUM(4Q90_INCOME)-@SUM(4Q90_EXPENSES).

Improv works differently. There are no cell addresses, just categories of information (such as expenses and quarter) and specific items that relate to one or more categories. Formulas refer directly to categories or items. You can define up to 12 categories, which you can display as rows, columns, or pages of a multidimensional worksheet. The bottom line: You get enormous freedom to analyze information through easy rearrangement of categories.

If it had *Excel*'s or *1-2-3*'s powerful tools for gathering

Expenses • View1 — Budget-3.wkb

Figures | Region

Actual | North

Item

Year

Quarter

	1989	1990			
	4th Q	1st Q	2nd Q	3rd Q	4th Q
Production					
Salaries	$348	$358	$369	$380	$392
Equipment	$211	$217	$224	$231	$237
Supplies	$854	$880	$906	$933	$961
Travel	$25	$26	$27	$27	$28
Other	$108	$111	$115	$118	$122
Sales					
Salaries	$115	$118	$122	$126	$129
Equipment	$18	$19	$19	$20	$20
Supplies	$22	$23	$23	$24	$25

Dept | Account

Calc

3. Here, the madel has grown to include six categories. 'Expenses' has been renomed 'Figures' to ovaid canfusian with the new 'Accaunt' categary, ond the formulo pone hos been clased. The 'Figures' and 'Region' category tiles at the upper left ore mapped to poges of Improv's 3-D warksheet. The display belaw the tiles shows that the current page cantoins octuol figures for the North region. To chonge regions or view budget or vorionce figures, yau click on the diogonol orrows to page thraugh the warksheet.

Expenses • View1 — Budget-4.wkb

Figures | Dept

Actual | Production

Item

Account

Region

	Supplies				
	North	Central	South	West	Foreign
1st Q					
1987	$814	$619	$523	$1001	$137
1988	$867	$659	$557	$1066	$145
1989	$865	$657	$556	$1064	$145
1990	$880	$669	$566	$1082	$148
2nd Q					
1987	$816	$620	$525	$1004	$137
1988	$877	$667	$564	$1079	$147
1989	$901	$685	$579	$1108	$151
1990	$906	$689	$583	$1114	$152

Quarter | Year

Calc

4. Improv's slickest trick lets you reorgonize complex worksheets with a few passes of the mause. The previous view showed quarterly expenses by accaunt for eoch department. This view, creoted simply by drogging the categary tiles to their new pasitians, disploys o histary of each region's quarterly expenses for individuol occaunts. Yau con look ot several views ot once, ond you can nome ond sove them for future use.

SNAPSHOT

Improv

Lotus's next spreadsheet redesigns the worksheet model for new flexibility in organizing and viewing data.

KEY FEATURES

- **Meaningful names replace arbitrary cell addresses**
- **Lets you rebuild worksheets simply by rearranging categories of information**
- **Multiple simultaneous views of data**

AVAILABILITY

To be announced

PRICING

$695; free with purchase of Next systems by year-end

Lotus Development
55 Cambridge Pkwy.
Cambridge, MA 02142
617/577-8500

Reader service no. 745

and consolidating data from other programs, *Improv* would be a real time-saver for managers who analyze large amounts of information. But *Improv*'s different views of a single set of data still offer a great model for sharing corporate data. (For instance, an accountant could look at last month's balance sheet while a senior manager inspected a quarterly profit-loss statement—but the two would actually be working on the same file.) And *Improv*'s well-structured approach should ward off user errors.

Lotus won't discuss plans for *Windows* or OS/2 versions, but those seem likely. Meanwhile, the Next Computer is proving fertile ground for innovative applications; Informix's *Wingz* and Ashton-Tate's *PowerStep* will give Next users a choice of three cutting-edge spreadsheet programs. While its uncertain prospects make buying the Next a gamble, it's too early to write off the computer.

Robert Lauriston is a contributing editor for PC World.

POWER TIP NO. 145

1-2-3 Highlights

It's sometimes useful to have certain cells or ranges in a 1-2-3 worksheet stand out on the screen. You can turn a cell or range green—or make it bold on a monochrome system—using the Range Unprotect command. As long as Global Protection hasn't been enabled, the command will have no other effect.

Donald A. Jones
Salinas, California

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(30 minutes if you skip ahead to the 800 number.)

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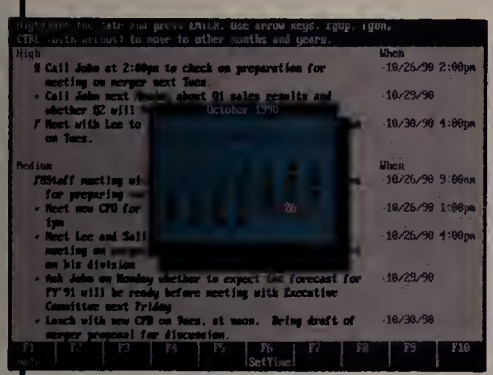

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Choose from the ready-to-use starter applications, including the Activities Planner, People Manager, Account Manager or Information Sifter. Or customize applications for more specific needs. If it all sounds too good to be true, consider what these Agenda users have to say: "All of those notes, pads, and slips of paper that littered my desk are gone... I just put them into Agenda."

—Grant Tipler, Manager, Corporate Banking, Head Office, The Royal Bank of Canada

"The first program... that allows me to easily enter information, file it, and then use it." *—Corson Ellis III, President, Kessler-Ellis Products*

"The two most important things in management are follow-up and follow-through. Agenda is essential for both." *—Randy Fields, Chairman, Mrs. Fields, Inc.*

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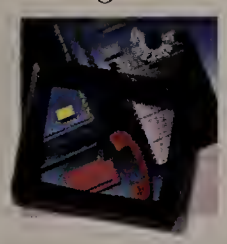
Lotus Agenda



Finally, a word to everyone who read this ad all the way from the beginning.

Your ten minutes are about up. Get back to work.

Introducing New Lotus Agenda 2.0

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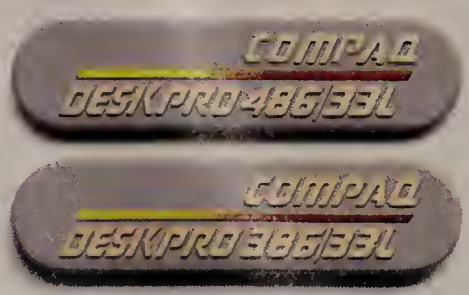

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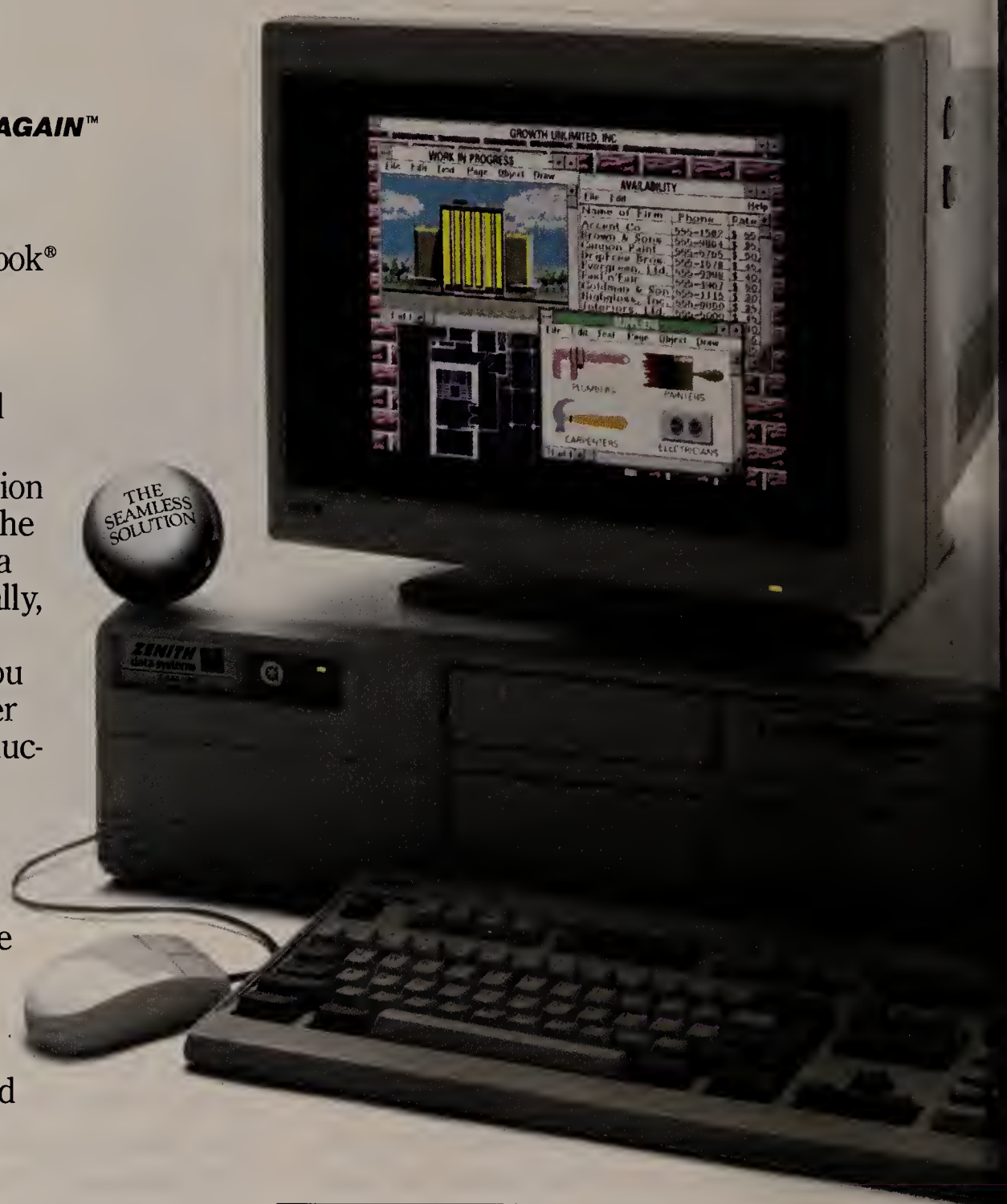

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PRODUCT OUTLOOK

Edited by MIKE HOGAN

Airis VH-286

Mail-Order Notebook Breaks the Battery-Life Barrier

The Airis VH-286 laptop computer provides you with all the most popular notebook features, including 6 to 20 hours of uninterrupted operation from a single set of standard alkaline C cells.

Their screen, keyboard, and hard disk shortcomings are now history, but most notebook PCs still suffer from an unhappy trade-off between weight and battery life.

The Airis VH-286 promises to change all that—at a killer price of $1899. Although this laptop packs a 12.5-MHz 286 processor, a backlit VGA display, a 20MB hard drive, and at least 6 hours of continuous battery operation, it weighs in at a mere 6½ pounds.

The trick is ten—count 'em, ten—standard alkaline C cells available at any convenience store. These simply provide more juice than the nickel-cadmium cells found in your average 3-hour notebook. Airis has also added more than the average number of power management features, including lots of low-power CMOS chips, a dedicated keyboard processor that shuts down inactive components, and a 256K disk cache that reduces hard disk reads and writes.

Depending upon the efficiency of the cache, you may get as many as 20 hours of uninterrupted operation on a single set of alkalines, says the company. Airis also claims to squeeze 6 to 8 hours out of an optional, rechargeable, $199 nickel-cadmium battery.

The space-saving, nonstandard keyboards that come with some notebooks can slow you down and drive you crazy when you switch from your desktop PC. The VH-286 keyboard minimizes finger confusion by placing its dedicated cursor control keys in the familiar inverted T. <Page Up> and <Page Down> keys are dedicated too, and there's a large <Enter> key the likes of which you haven't seen since you put your IBM Selectric in mothballs.

Other gee-whiz features include DOS 4.0 in ROM, remote diagnostics via modem, and Telerom software, which will allow the company to upgrade your ROM BIOS via modem.

You get 2MB of RAM, expandable to 4MB, as well as a built-in 2400-bps modem in this 10-by-12-by-2-inch laptop. Serial, parallel, RJ-11, mouse, and floppy ports are standard, but there are no expansion slots. An outboard floppy drive is available for $150 at the time of purchase or for $249 later. Airis Computer Corp., 1824 N. Besly Ct., Chicago, IL 60622; 312/384-5608. —*Michael Goodwin*

Reader service no. 700

INSIDE PRODUCT OUTLOOK

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LaserJet IIID

New Work-Group LaserJet Melds Paper Handling, PCL 5

The newest member of Hewlett-Packard's LaserJet family combines high-volume printing with presentation-quality output. The LaserJet IIID, which replaces the IID, marks the second step in HP's effort to upgrade the entire LaserJet line with its rich PCL 5 page composition language.

You'll get the same advanced paper-handling options that appeared with the IID in November 1988, but with the better page composition features of PCL 5 and HP's Resolution Enhancement technology, both of which debuted on the LaserJet III in March of this year. (HP has also targeted its 4-page-per-minute personal laser, the IIP, for a PCL 5 upgrade but won't specify the time frame.)

The LaserJet III and IIID are both 8-ppm printers designed for work-group–level print tasks. With its heavier duty cycle and more varied paper-handling options, the IIID seems better for larger work groups or for a production specialist handling print jobs for several co-workers.

The IIID is rated to provide 20,000 pages a month, compared to the III's 12,000. And the IIID is clearly head and shoulders above the III by virtue of its two 200-page input bins and double-sided printing capability. You can print up to 800 pages without reloading, alternate between two kinds of paper or media, and save paper by printing on both sides.

HP also eliminated the external power cords on its 50-unit envelope feeder, available for $350. Alternatively, for $89 you can get a 15-envelope feeder that replaces a tray. You also can buy an 8½-by-14-inch legal-sized tray for $79, or a 5-by-8-inch notepad tray for $75; each holds 200 pages. The III and IIID take the same $127 replacement toner cartridge/drum, which should be good for 5000 pages.

The LaserJet IIID combines the IID's advanced paper-handling features with the high-quality page composition abilities of PCL 5 and the Resolution Enhancement technology first introduced on the LaserJet III.

Both the III and IIID now offer PCL 5, with its on-the-fly font scaling of cartridge fonts and the IIID's two internal scalable fonts. (CG Times and Univers in regular, bold, italic, and bold italic are bundled in along with Courier and Line Printer fixed fonts.) PCL 5 also brings the faster graphics printing and text rotation capabilities of its vector-oriented HP-GL/2 component. Finally, Resolution Enhancement adjusts the size and positioning of the dots in the IIID's 300-dpi output to sharpen character edges and line intersections and smooth out the jaggies on curves.

HP has cut pricing on its memory boards to $335 for its 1MB add-in and $560 for the 2MB version. That means that you can put together a PostScript-compatible III or IIID with HP's Adobe PostScript cartridge and the requisite additional memory for as little as $3425 and $4850, respectively. On the other hand, HP hasn't yet developed the kind of automatic file sensing and emulation-switching technology embodied in rival products such as the QMS-PS 410 (see *Product Outlook*, October 1990).

The IIID sells for $3595 (the same price as the IID, which stops shipping immediately). Hewlett-Packard, 19310 Pruneridge Ave., Cupertino, CA 95014; 800/752-0900. —*Mike Hogan*

Reader service no. 701

VCRCopy

Automated Home Backup on VCR Tape

If you're a home computer user, you don't need to wait for volume manufacturing and mass marketing to reduce the price of a tape backup system. Alpha Microsystems' VCRCopy lets you perform automated, error-checked backups on a videocassette recorder.

The 8-bit half card is the same one that Alpha Micro has been selling for years with its high-end UNIX-based computers, but the home version has been outfitted with a DOS-based point-and-click graphical user interface much like that of the IBM PS/1. It also sells for a price that makes sense for home use: $175.

VCRCopy hooks up to VHS or Beta recorders via the video in/out plugs you find on the back of your VCR and on the card. You get 80MB on a VHS tape in your recorder's 2-hour mode or 160MB in 4-hour mode.

Because data is recorded several times by the rotating recording head, reliability is even better than with streaming tape, Alpha Micro claims.

The new product is not the fastest backup device—it takes a half hour to back up 20MB—but it does accept standard videotapes, available in countless stores for a fraction of the price of a tape backup cartridge, and it should be adequate for home use.

If your VCR can be set for delayed recording, you can do timed backups. You also have the option of making file-by-file, mirror-image backups or simply copying files that have been modified since your last backup. Alpha Microsystems, 3501 W. Sunflower Ave., Santa Ana, CA 92799; 800/992-9779, 800/821-0612 California, 714/957-8500. —*Mark Henricks*

Reader service no. 703

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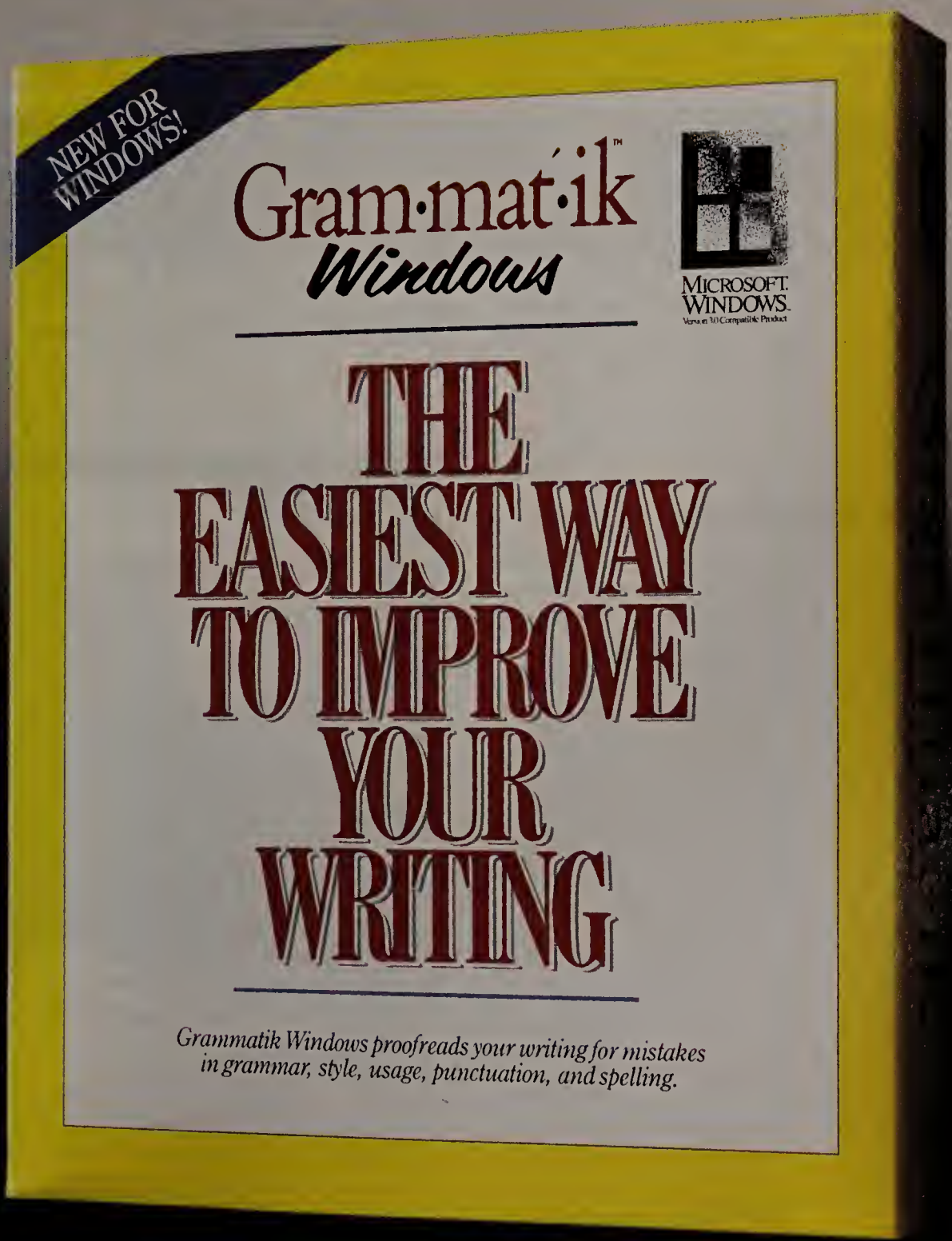

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Apple Personal LaserWriter NT, NEC Silentwriter2 Model 90

PostScript Printers Get Personal

There's no beating PostScript printers for easy font scaling or printing complex images, but unless you're a professional desktop publisher your ends seldom cost-justify these means. Now Apple and NEC have joined the growing list of vendors that offer affordable PostScript printers to those whose appetite for quality output exceeds their work loads.

Apple, which brought Adobe PostScript to desktop computing, has finally made a PostScript printer that can actually fit on your desk. The $3299 Personal LaserWriter NT is two-thirds the size and about half the price of Apple's top-of-the-line LaserWriter IINTX, but it features the same 35 scalable fonts and graphics prowess.

The compact NT measures 15 by 18 by 10 inches and weighs 32 pounds. Its 300-dpi Canon engine is rated at 4 pages per minute (ppm) and about 2500 pages per month, making it suitable for low-volume printing. It comes with 2MB of RAM (expandable to 8MB) and a Motorola 68000 processor—common to many PostScript interpreters but slower than the 68020 featured in the IINTX.

Beyond PostScript, the NT emulates the popular Diablo 630 printer and HP's outdated PCL 3, rather than the more capable and popular PCL 4 or even the new PCL 5. It lets you change emulation modes via a software switch. PC users can access the LaserWriter through its RS-232 serial port or via a $299 LocalTalk PC add-in board. The unit comes with a 250-sheet paper cassette and a 15-sheet multipurpose tray that can be used for letterhead, transparencies, envelopes, or other, less common print jobs.

At $2495, NEC's Silentwriter2 Model 90 is considerably less expensive than the NT. It also has a faster engine, although both products will print your PostScript graphics at about the same speed. Moreover, the Model 90 provides better HP emulation.

The Model 90 comes with a 300-dpi, 6-ppm Minolta engine and 2MB of RAM. Unlike the LaserWriter NT, the Model 90's memory expands only to 4MB, and it's considerably heftier than the Apple, carrying 44 pounds on its 18-by-14-by-8-inch frame. The Model 90's controller, like the NT's, is driven by a Motorola 68000 processor, but the 90 has a duty cycle almost two-and-a-half times Apple's, at 6000 pages per month.

Unlike the NT, the Model 90 emulates HP PCL 4 and provides 13 of the language's resident fonts in addition to the 35 standard PostScript fonts. It also offers *Windows*-based software for displaying fonts on screen. Parallel, serial, and AppleTalk interfaces are standard and allow the Model 90 to work as a second printer on a multiplatform LAN. A universal paper tray handles letter- or legal-sized paper, transparencies, or envelopes. A manual feeder is included, and an extra $995 gets you a 2MB RAM upgrade. —*Daniel Tynan*

Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014; 408/996-1010.
Reader service no. 705

NEC Technologies Inc., 1414 Massachusetts Ave., Boxborough, MA 01719; 800/632-4636, 508/264-8000.
Reader service no. 706

CrystalPrint Express

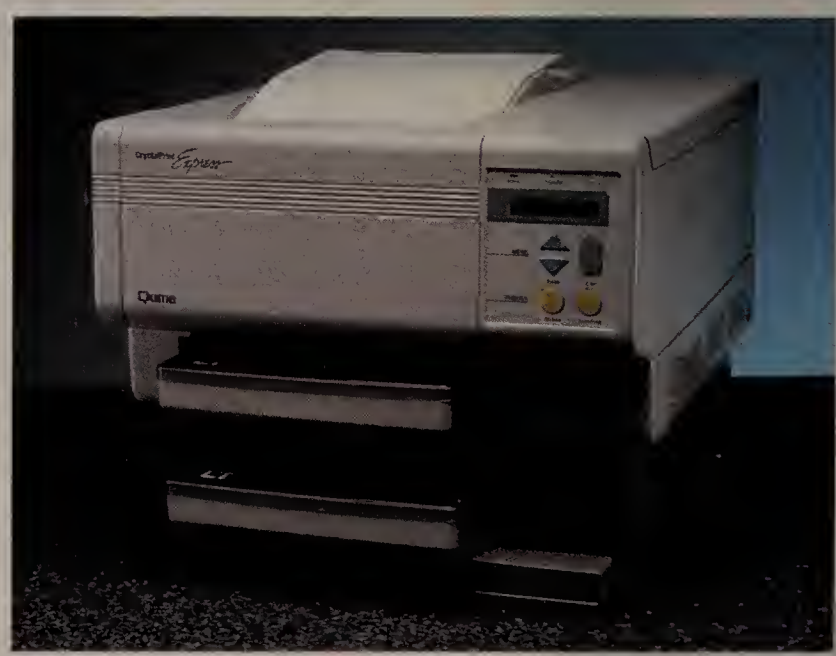
One Printer, Two Emulations

Qume's CrystalPrint Express enhances printer throughput and cuts emulation problems on high-capacity networks inhabited by a mix of PC and Macintosh users who need to do both desktop publishing and volume word processing jobs.

Nominally a PostScript printer, CrystalPrint Express automatically switches to Hewlett-Packard LaserJet Series II emulation and back again as needed. You don't have to throw any switches or power down the printer to change emulations once you've gone through a quick modification of the installation for your application software.

At 12 pages per minute, the $5595 printer is faster than most in its class. It maintains a sprightly pace during computation-intensive PostScript scaling and graphics generation, thanks to a 32-bit Weitek RISC coprocessor backed up by 3MB of memory (upgradable to 8MB). At the touch of a button, the Sanyo SPX-612 laser engine switches from a resolution of 300-by-300 dpi to 600-by-300 dpi.

The printer ships with a generous selection of 13 Bitstream PostScript font families as well as 31 scalable HP emulation fonts, and it will run Adobe Type 1 and Type 3 downloadable fonts. You needn't worry about the currently fluid state of type-handling standards; a slot on the side of the printer for firmware cartridges provides an upgrade path to whatever new standards emerge.



No switches to throw, no need to power down: CrystalPrint Express automatically switches between PostScript and HP LaserJet emulations.

CrystalPrint Express comes with a pair of 250-sheet, 8½-by-11-inch paper trays that you can use as backups to each other, effectively giving you either 500-sheet capacity or simultaneous access to different types of paper. Envelopes must be fed manually, but an optional $69 legal-sized tray is available. Qume Corp., 500 Yosemite Dr., Milpitas, CA 95035; 800/223-2479, 408/942-4000. —*Mark Henricks*
Reader service no. 710

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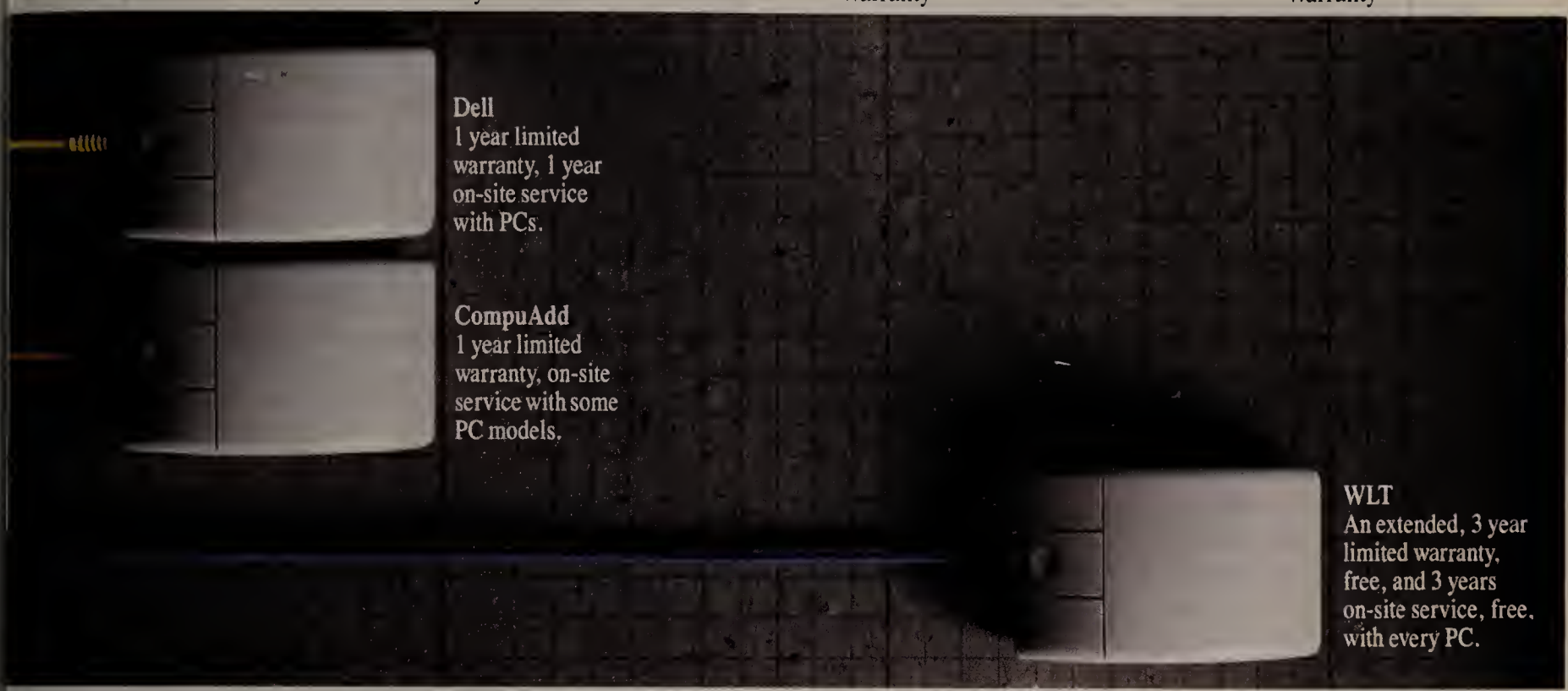

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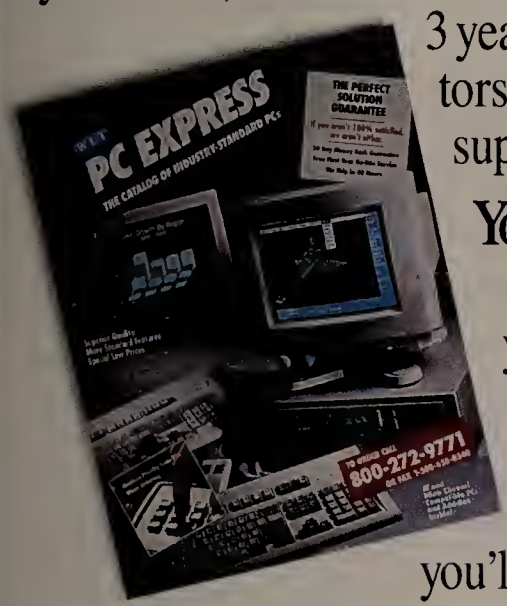

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Circle 321 on reader service card

SmarText

Automatic Hypertext Linking

SmarText automatically builds hypertext documents, such as training manuals and on-line reference texts, from existing files. You select the source documents from a floppy, local, or remote hard disk or from CD ROM. Samna's new software analyzes the files, counting words to see which appear most commonly, and puts together a keyword list, index, outline, and basic text linkages.

SmarText can automatically link documents as large as 2GB at a rate of 300 pages an hour. After the program does its stuff, you can go back and add or delete keywords, expand or collapse outlines, and build extensions to the hypertext links.

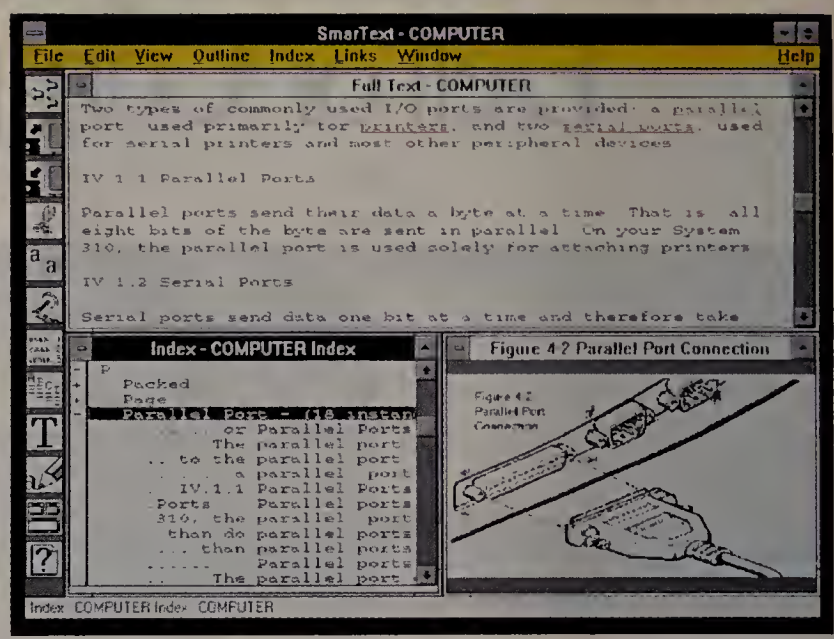
The linking process results in a keyword index. You can speed future links and arrive at a more accurate result by specifying your own edited keyword index for *SmarText* to use. Either way you'll wind up with a linked electronic document that can be customized for different levels of users. The document can hook to image and graphics files as well, so users can double-click on a word or topic to find an illustration. Users can also perform Boolean searches, or copy and print text from *SmarText* documents.

Using *SmarText* to build a hypertext document won't affect your source documents. The program is compatible with ASCII, *WordPerfect*, and *Microsoft Word*, as well as with Samna's own word processors, *Ami* and *Ami Professional*. Graphics formats, including PCX, TIFF, and bit maps, are also supported.

The downside is that the overhead is an index about half as large as your linked file; in other words, if you index a 100K document, you'll add another 50K to your hard disk.

SmarText retails for $495 for the complete authoring and reading program. A read-only version for users costs $99. Both require DOS 3.0 or a later version, 640K of memory, *Windows 2.0* or *3.0*, and a hard disk. A mouse is recommended. Samna Corp., 5600 Glenridge Dr., Atlanta, GA 30342; 800/831-9679. —*Mark Henricks*

Reader service no. 709



Using SmarText, you can turn existing data files into hypertext documents, such as on-line training manuals and reference texts, and then customize them for different levels of users.

Sigma VGA Legend, Genoa Models 6400A and 6600A

Refreshing, Flicker-Free Resolution

Graphical user interfaces on super-VGA computer displays look sharp, but long hours of work can give you eyestrain from the increased screen flicker at higher resolutions. The remedy is a graphics adapter with a higher refresh rate (the number of times per second the screen image is redrawn).

Sigma Designs' VGA Legend and Genoa Systems' Models 6400A and 6600A support the 72-Hz refresh rate standard set by the Video Electronics Standards Association. Already mandatory in Europe, the standard calls for redrawing an on-screen image 72 times a second—that's up to 29 percent faster than the 56-Hz to 60-Hz refresh rates that existing super-VGA products have.

The difference can make a long shift at the screen in a super-VGA graphical application or environment seem a lot less tiresome, although text-oriented users won't notice as much difference. Boards with higher refresh rates for 640 by 480 VGA and lesser standards have been available from Genoa since last year.

The new boards take their higher refresh rates to greater levels of resolution. With the standard 512K of on-board memory, Sigma's 16-bit VGA Legend supports 72-Hz refresh rates in graphical applications at 800 by 600 super VGA with 256 colors, and 1024 by 768 resolution with 16 colors. In an alternative configuration with twice as much memory, the VGA Legend supports 256 colors in 1024 by 768 noninterlaced.

Genoa's on-board ASIC gives its 6000 series super-VGA boards 70-Hz to 75-Hz refresh rates, depending on what your monitor will support, at up to 1024 by 768 resolution and 16 colors. Both the 16-bit, AT-compatible Model 6400A and the Micro Channel–compatible Model 6600A come with 512K; there are no memory or other upgrade options.

Before you pop for the flicker-reducing card, you'll need a monitor that will support the higher refresh rate. Sigma says its board will work with any PC-compatible multisynchronous monitor, but not all monitors refresh as rapidly as the new cards. Those that do include Hitachi's Hi-Scan 20, Mitsubishi's Diamond Scan 16L, Nanao's Flexscan 9070, NEC's MultiSync 4D and 5D, Relisys's RE-1520, and Sony's CPD-1304.

The boards ship with drivers for *Windows 3.0*, *Windows/286*, and *Windows/386* as well as *WordPerfect*, *1-2-3*, *AutoCAD*, *GEM*, and *Ventura Publisher*. Each requires an empty 8/16-bit slot or (in the case of Genoa's 6600A) an empty Micro Channel slot.

Sigma's 512K VGA Legend retails for $449; the 1MB model is $569. The Genoa Model 6400A, AT-compatible version, is $499. The MCA-compatible Model 6600A retails for $649. —*Mark Henricks*

Sigma Designs Inc., 46501 Landing Pkwy., Fremont, CA 94538; 415/770-0100, 415/770-0110 (fax).

Reader service no. 712

Genoa Systems Corp., 75 E. Trimble Rd., San Jose, CA 95131; 800/423-6211, 408/932-9123, 408/432-9090, 408/434-0997 (fax).

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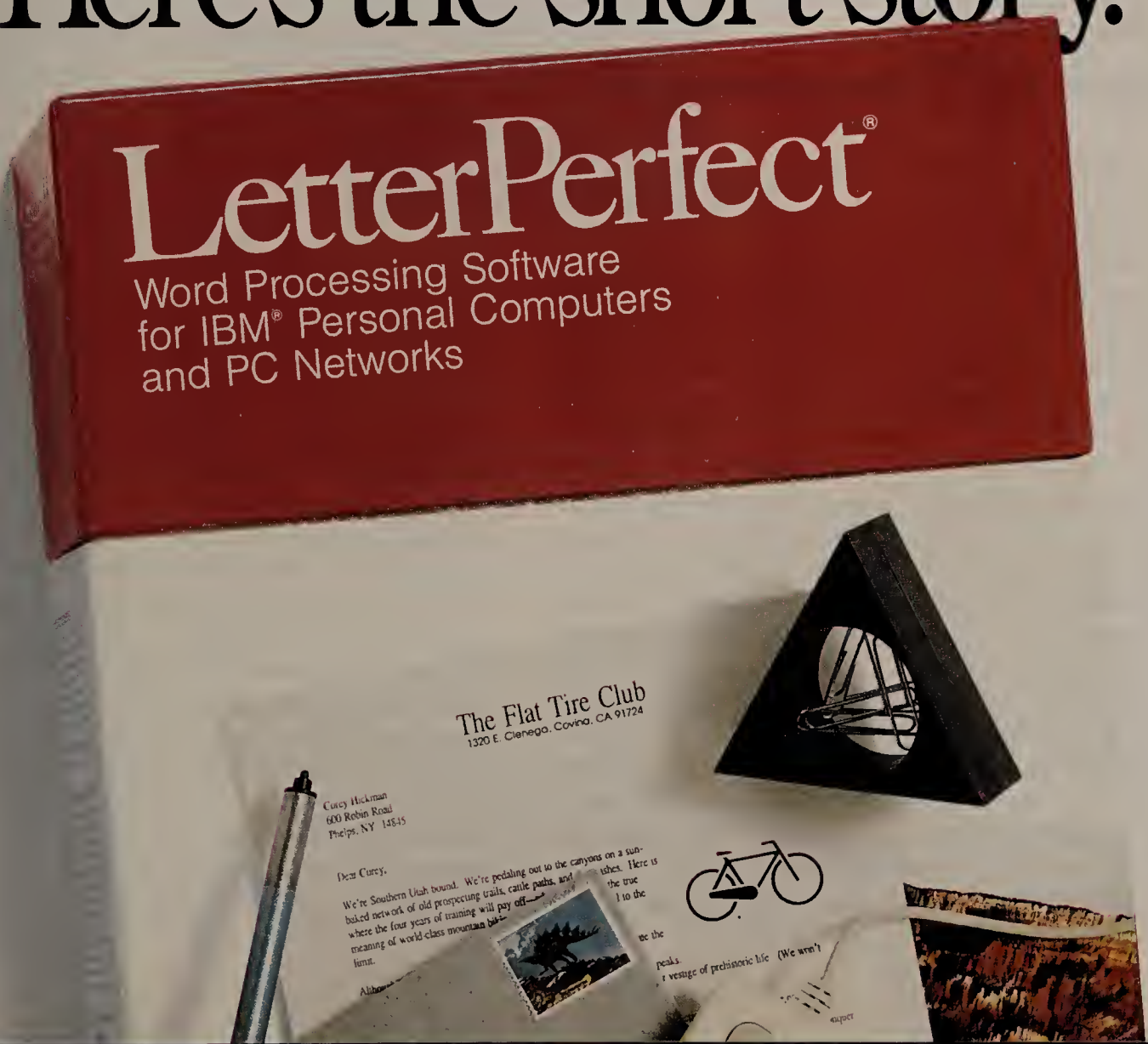
Here's the short story.



Grid 1810

Notebook With Removable Hard Drive

Low-power, lightweight notebook PCs are improving by leaps and bounds. Grid's 1810 delivers yet another breakthrough: a removable hard drive. (Epson turns the same trick among heavier laptops with its LT-286.)

Even without the insy-outsy hard disk, the 10-MHz V-20–based 1810 would be attractive. It offers 1MB of RAM (expandable to 2MB), a reflective (nonbacklit) EGA display, and DOS 3.3 and *Lap-Link* in ROM at a low list price of $2895 and a very light weight of 6.7 pounds (plus 11 ounces for the 2-hour battery).

Because it lacks a built-in floppy drive, the 1810 is not the machine to take on the road without the hard drive. However, you now enjoy the option of locking your hard disk in a safe place where no one will be able to purloin or damage mission-critical data while your 1810 is unattended.

The removable hard drive also lets you swap up to 20MB of data quickly from one 1810 to another without copying to floppies or going through a *Lap-Link* cable one directory at a time. Moreover, Grid plans to introduce a Desktop Receiver in the fourth quarter that will let you effortlessly move disks between the 1810 and any desktop PC.

Finally, the removable hard drive opens the door to virtually unlimited data storage via additional hard drives, an opportunity heretofore unavailable in this form factor (12 by 10 by 2 inches). An additional 28ms, 20MB drive costs $795. Other options include an external 1.44MB 3½-inch floppy at $350, a 2400-bps MNP level 5 external modem for $595, and a backlit EGA display for $100. The 1810 is equipped with serial, parallel, and external monitor/keyboard ports, in addition to dual RJ-11 jacks. Grid Systems Corp., 47211 Lakeview Blvd., Fremont, CA 94538; 800/222-4743, 415/656-4700. —*Michael Goodwin*

Reader service no. 714

The Grid 1810 not only gives you some of the best features in a notebook but also lets you remove its hard disk and lock it up for safekeeping.

AccuScan, Scanning Gallery Plus 5.0

HP Widens Your Scanning Horizons

Image scanning and optical character recognition (OCR) have been restricted mostly to desktop publishing and high-volume text input—and for good reason: Both dip pretty deeply into your billfold as well as your computer's memory and storage resources.

Hewlett-Packard hopes to entice more business-application users into image scanning and OCR (and sell more of its market-leading ScanJet scanner) by introducing an OCR package backed up by a spiffier version of its scanner utility software. *AccuScan* offers *Windows*-based OCR in tandem with the image capture capabilities of HP's *Scanning Gallery Plus 5.0*.

If you've been driving a computer keyboard for any length of time, you may already be asking yourself how anyone could marry *Windows* with scanning and save either memory or money. HP doesn't have the answer. At $595 a pop for either program sans *Windows* run time, it's clear we're talking serious dollars. We're also talking serious memory and disk usage: a minimum of 2MB to 2.6MB of memory to run the applications, 7MB of disk space to load them, and the *Windows* overhead. Says HP: Think 40MB hard drive. You may also want to think 386SX computer, although the software will run on a 286.

AccuScan automates text-scanning functions nicely for novices without sacrificing other, more sophisticated options for advanced users. For example, it automatically sorts text from graphics on a document and gives you a quick preview of what you're scanning. You can speed the final scan by identifying indents and other boundaries or areas to ignore, or even rearrange the final layout of the text regions being scanned in. Just point and click, then select options from *Windows'* pulldown menus. A lighter/darker control lets you compensate for the quality of the document.

AccuScan recognizes most popular fonts in point sizes from 6 to 72 and saves in the major word processing and spreadsheet formats, including *WordStar*, *WordPerfect*, *Word*, *Excel*, and *1-2-3*.

Scanning Gallery offers even more ways to adjust image input during preview mode, including editing gray scales, adjusting resolution and brightness, and changing halftone patterns. A quick sample print gives you a proof sheet of sorts, with your image in various halftones and with different white, black, and brightness settings. *Scanning Gallery* also reports on how much disk space its TIFF, PCX, or EPS output will require as you change image size and resolution.

AccuScan requires *Scanning Gallery Plus 5.0* to run. Both packages require DOS 3.3 or a later version and *Windows 2.11* or later. Bundled with *Scanning Gallery* is a ScanJet interface card for an ISA or MCA computer. Hewlett-Packard, 19310 Pruneridge Ave., Cupertino, CA 95014; 800/752-0900. —*Mike Hogan*

Reader service no. 707

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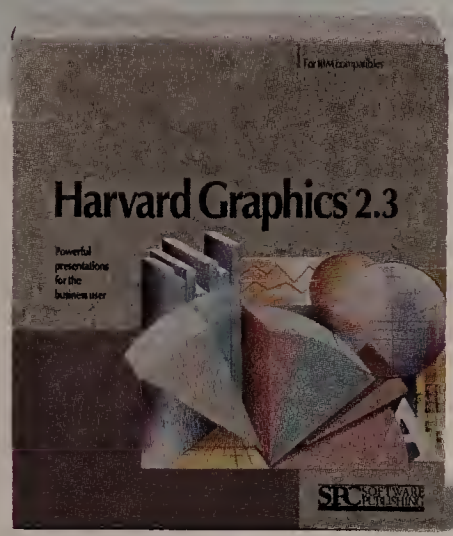

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NetWare 386 3.1, Advanced NetWare 2.15c, SFT NetWare 2.15c

NetWare Catches Up With Itself

Until recently, the common wisdom was that Advanced NetWare and SFT NetWare would quickly disappear after NetWare 386 was introduced last year. But key 386 features have been delayed, and even Novell's recent upgrade, NetWare 386 3.1, lacks full tape backup and Macintosh workstation support. As a result, 386 has been slow to catch on. In the meantime, Advanced and SFT NetWare users have successfully pressured Novell to add 386 features to the older products, so most new features are available for all three versions.

Advanced NetWare, SFT, and 386 share improved drivers for both DOS and OS/2 workstations. The new DOS drivers, required to access NetWare servers with *Windows 3.0*, can be loaded into expanded or—with a memory manager like Quarterdeck's *QEMM* or *Windows'* HIMEM.SYS—extended memory, freeing an additional 33K of base RAM. In *Windows 3.0*'s 386-enhanced mode, that's 33K saved for *each* DOS application. The new OS/2 requester supports OS/2 1.2, improves network access from the DOS Compatibility Box, and comes bundled with an OS/2 version of the PCONSOLE print utility. It also includes Named Pipes for DOS, which enables DOS workstations to access *SQL Server* and other OS/2 client-server applications.

NetWare Name Service, also for all three NetWare versions, lets users log on to a "domain" of up to 400 servers with a single command. *Name Service* makes it much easier to configure servers and move printers from one server to another without having to change log-in scripts, batch files, or work habits. *Name Service*'s domains are roughly equivalent to those promised for *LAN Manager 2.0;* neither provides the hardware independence or wide area network routing benefits of Banyan's VINES.

New printing and backup utilities for Advanced and SFT NetWare narrow the features gap to NetWare 386. *NetWare Print Server 1.1* lets up to 8 servers share as many as 16 printers, which can be attached to any workstations.

NetWare 386 3.1 offers very few enhancements. Administrators can manage NetWare 386 servers from any workstation or remotely by modem. A 3.1 server can now mirror up to 8 of its 32 drives and can hold up to 64 LAN interface boards (assuming you can find 64 slots!). In addition, there are lots of new software hooks to help third-party developers write NetWare 386 drivers, utilities, and client-server applications. Novell is still hammering out the details of a full-featured tape backup specification.

Also due for NetWare 386 is full support for Mac and UNIX workstations. Once drivers are available, NetWare 386's "multiple name space" will allow files to have separate names in each operating system, so that a file that appears as "1990-4Q.RPT" under DOS might show up as "1990 4th Quarter Report" on an OS/2 or Mac workstation.

Advanced NetWare 2.15c retails for $3295, SFT NetWare 2.15c is $4995, and NetWare 386 3.1 is $7995. Upgrades from 3.0 are $2800; upgrades from other versions are $1155 to $5855 per server. *NetWare DOS Client Kit 3.01* (the new DOS workstation drivers) is available free from authorized Novell dealers or downloaded from NetWire (a CompuServe forum), or for $30 from Novell's Aftermarket Products Group (800/453-1267). *NetWare Requester for OS/2 1.2* is $200 or can be obtained free from the NetWire forum. *NetWare Name Service* costs $1995 per company. Novell, Inc., 122 East 1700 South, Provo, UT 84606; 800/453-1267. —*Robert Lauriston*

Reader service no. 718

GigaTrend TurboDat, Irwin 9221Se

DAT's the Route for Net Backup

Backing up a LAN has traditionally meant turning to a big expensive tape drive. But the arrival of the slim digital audiotape (DAT) has allowed GigaTrend and Irwin to shrink the box and double the tape's capacity. GigaTrend's external or internal TurboDat can save 2.5GB of data to 4mm DAT cassettes at the rate of 3MB to 20MB per minute, and restore at 5MB per minute. The Irwin external 9221Se restores and backs up 2.5GB to an 8mm cassette at a rate of 14MB per minute.

Software supplied with both drives allows you to back up by file, subdirectory, drive, and latest file date. Both products can do multiple backups on one tape and append without overwriting previous backups, and both let you create and run up to 10 macros at a time and use file passwords.

The GigaTrend TurboDat (above) and Irwin 9221Se digital audiotape drives prove that good things can come in smaller and cheaper boxes.

There are some differences between the drives: The Irwin can do image backups of all disk contents, while the TurboDat offers 3:1 data compression, which means a single 4mm cassette can hold up to 2.5GB of data. The Irwin 9221Se sells for $7495 with controller; the TurboDat's price with controller varies between $5500 and $8000. *ServerDat* backs up the server and any disks attached to it, *LANDat* backs up a workstation, and *FulltimeDat* does incremental backups for up-to-the-second security. —*Susan Lusty*

GigaTrend Inc., 2234 Rutherford Rd., Carlsbad, CA 92008; 619/931-9122.

Reader service no. 716

Irwin Magnetic Systems, Inc., 2101 Commonwealth Blvd., Ann Arbor, MI 48105-1561; 800/421-1879, 313/930-9000, 313/995-8287 (fax).

Reader service no. 717

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You said make it simple. So we gave the QMS-PS 410 the intelligence to actually "think for you" by automatically switching between emulations and interfaces! This printer has ESP (Emulation Sensing Processor), which interprets incoming data and *automatically* chooses the appropriate printer language. And you can send data *simultaneously* to its AppleTalk®, serial and parallel interfaces! There's no need to change switch settings or send complicated software commands.

You said make it fast. So we created a super-fast controller with a 68020 processor and third generation QMS® ASAP™ technology (Advanced Systems Architecture for PostScript), which incorporates the latest in component and controller design.

You said make it expandable. So we made a variety of options available, including an HP-GL® emulation card, Adobe typeface cards, HP compatible font cards, memory upgrades and extended paper handling capabilities.

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You see, listening to you gave us the insight to develop a printer that offers real world solutions to real world problems. And the QMS-PS 410 delivers PostScript power to the people by giving you more solutions than any other printer on the market. Affordable. Reliable. Flexible. Solutions that set you free!

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Circle 202 on reader service card

Smartcom Exec

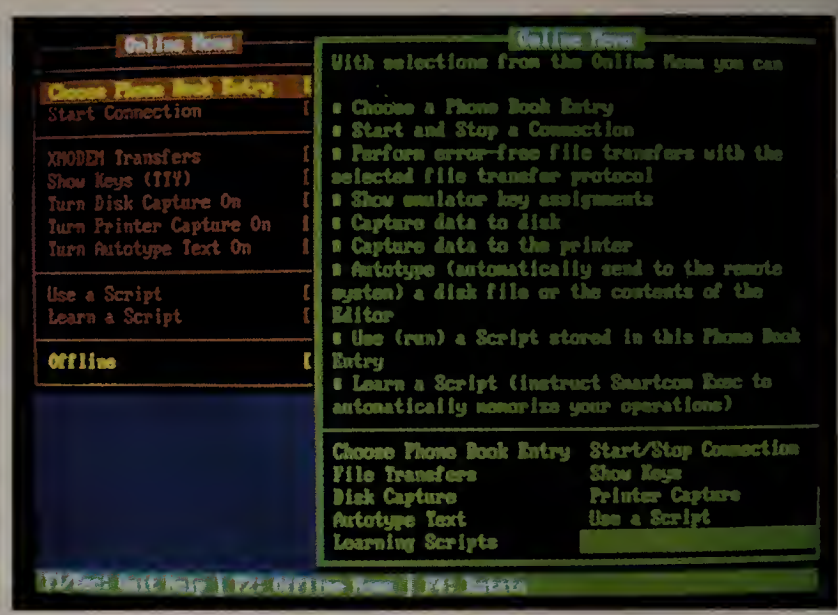
Midrange Smartcom Battles Procomm

Once upon a modem, *Smartcom* was one of the most popular communications programs around. But being bundled with Hayes modems is no longer enough to guarantee success. *Smartcom II,* which dwells in the lucrative midprice area where most business users buy, is outclassed by the relatively easy-to-use interface and powerful features of *Procomm Plus.*

Hayes is responding by introducing yet another variation on the theme: *Smartcom Exec* has a midrange price of $129 but a feature set more akin to that of the $249 *Smartcom III.* (*Smartcom II* will be phased out over the next couple of years.)

Smartcom Exec lacks *Smartcom III*'s support for simultaneous multiple sessions and packet-switched networks, and there's no file encryption or compression, but otherwise you'd have a tough time telling the programs apart. A nice twist in *Smartcom Exec* is support for background communications, which lets you work on other programs during file transfers. Also, Hayes has boosted *Exec*'s ease of use by adding mouse support and hot-key shortcuts.

Smartcom Exec shares *Smartcom III*'s support for popular terminal emulations and transfer protocols, including ZMODEM and Kermit, and provides full support for the SCOPE script language. Other similar features include a peruse buffer, support for high-speed modems, and one of the best text and script editors you'll find in a communications package. Yet it lacks a true *Procomm*-like dialing directory, a popular capability that's even in DCA's latest version of *Crosstalk Mk.4.*



Marry an easy-going interface with an advanced feature set that includes background communications, and you have Smartcom Exec, Hayes's midrange answer to Procomm Plus.

Smartcom Exec requires DOS 2.0 or a later version, 512K of memory, and a hard disk. *Smartcom II* or *III* users can upgrade to *Exec* for $35, while *Smartcom EZ* users can move up for $55. Hayes Microcomputer Products, Inc., P.O. Box 105203, Atlanta, GA 30348; 404/441-1617. —*Eric Brown*

Reader service no. 704

PAM 2.0

Lean, Mean Data Base Machine

Creating relational data base applications no longer requires programming or big hardware. Version 2.0 of Software Composers' *PAM (Program Automated Method)* is menu-driven, and it runs well in 256K of RAM.

PAM isn't intended for direct data manipulation but for building data base applications. From a series of menus you create forms, reports, transactions, and other building blocks of data management. Quasi–object oriented in nature, *PAM* applications are controlled by selected elements. For instance, the ten data types, from the general Alpha/Numeric to the specific Social Security Number, enable you to control just how data can be entered. The applications are run with *PAM*'s royalty-free run time.

You won't get the sort of control with *PAM* that you would with a programmable DBMS: Your menus will always look like *PAM* menus; characteristics like screen colors can't be changed. But you can get your applications up and running in little time, and they'll run on just about any DOS machine.

PAM 2.0 ships three ways, depending on how many tables can be used in a single application. The 3-table version lists for $145, the 6-table for $245, and the 35-table version for $345. Each requires DOS 2.1 or a later version. Software Composers Inc., 4500 Newcombe Dr., Plano, TX 75093; 214/985-8018, 214/985-0779 (fax). —*Lincoln Spector*

Reader service no. 720

HyperPAD 2.0

HyperPAD Made Better and Easier

The principal complaint heard about the text-based hypertext product *HyperPAD* was that poor documentation resulted in a steeper-than-necessary learning curve. Now Brightbill-Roberts has added three references to version 2.0: a user's guide, a guide to the PADtalk language, and a quick reference guide. You also get context-sensitive help and a hypertext tutorial on disk.

Many of the bundled pad programs, including the DOS manager and the phone address system, have been improved. Several new pads, such as a project manager, a NetWare administration utility, and a label printer, have been added. You can use them as is or alter them to create your own *HyperPAD* programs.

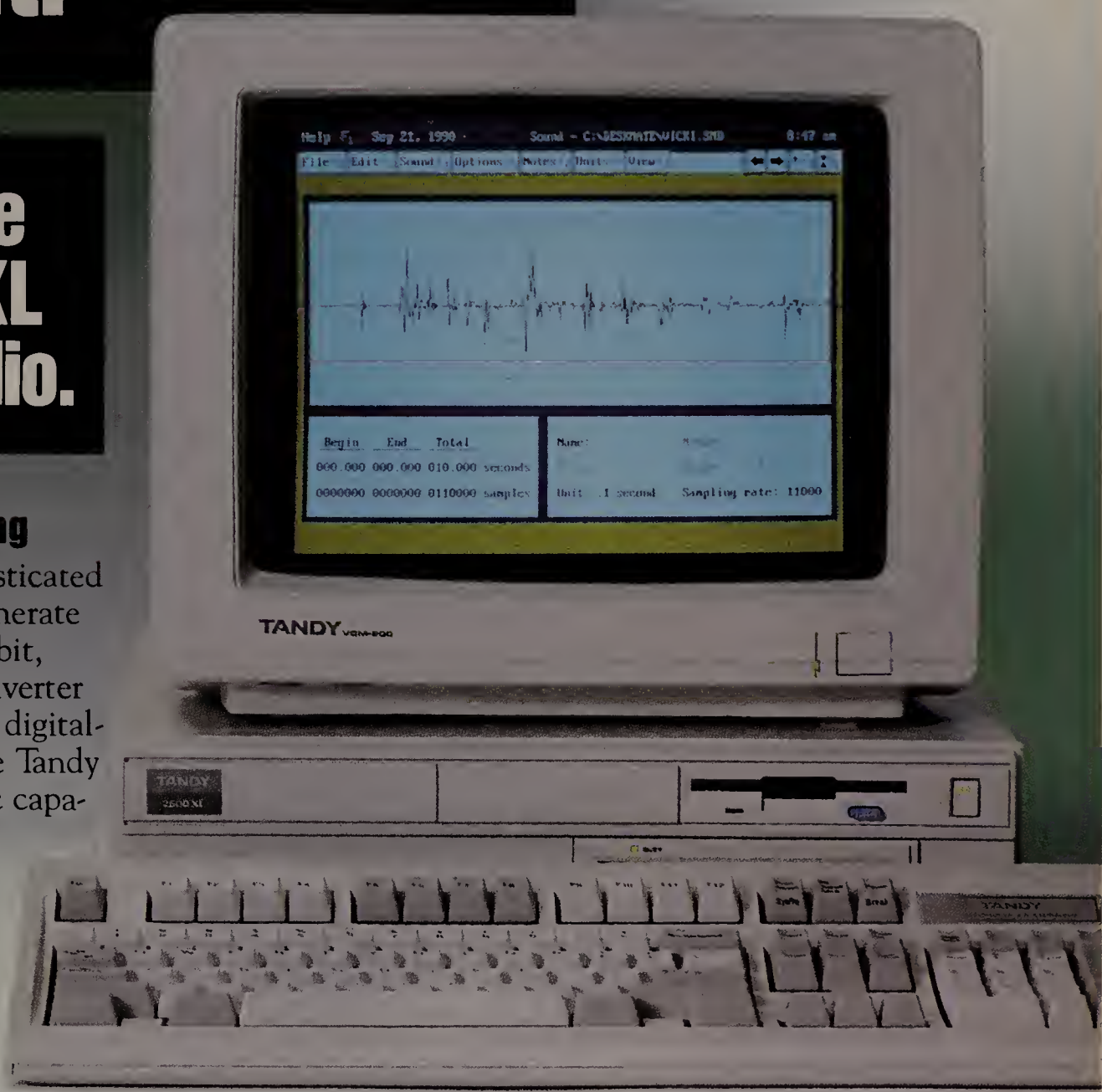
PADtalk commands also have been added; many of them are interface oriented. You can now add pop-up menus and list boxes to your pads, not to mention slide shows created by Brightbill-Roberts' presentation package *Show Partner F/X.*

A new, separate run time lets you distribute pads royalty-free to non-*HyperPAD* users. The run time is free to users buying *HyperPAD 2.0* before October 31, 1990, and $99 for other users. *HyperPAD* itself, which requires DOS 2.0 and 384K of RAM, lists for $149.95. Brightbill-Roberts, 120 E. Washington St. #421, Syracuse, NY 13202; 800/444-3490, 315/472-1732 (fax). —*Lincoln Spector*

Reader service no. 719

You've got to hear it to believe it.

Presenting the Tandy® 2500 XL with digital audio.



Hear what you've been missing

The Tandy 2500 XL, with its sophisticated sound-reproduction system, will generate new life into your programs. An 8-bit, DMA-driven, analog-to-digital converter (ADC) and an 8-bit, DMA-driven, digital-to-analog converter (DAC) give the Tandy 2500 XL amazing speech and music capability. You'll be able to record, edit and play back sound effects from a variety of sources, then save them onto diskette for playback at a later time.

Compact design, yet packed with advanced features

The Tandy 2500 XL boasts maximum features and expansion capability in a low-profile, small footprint. MS-DOS® and the DeskMate Graphical User Interface® are built into ROM. With an 80286 processor operating at 10 MHz, the 2500 XL includes a built-in 1.44MB 3½" floppy drive and 1 megabyte of memory. Plus, it supports three full-length, 16-bit expansion cards and two expansion devices—including a CD-ROM drive. The innovative case design has hinged expansion bays which swing open for easy access to card slots and devices. High-resolution VGA graphics support is also included.

Easy to buy . . . or lease

Hear the USA-made Tandy 2500 XL at any participating Radio Shack Computer Center, store or dealer. And remember, we have much more: printers, software, and the credit, training and leasing programs to put it all together!

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Circle 284 on reader service card

Takin' Care of Business

Small-Business Accounting Package Targets Service Companies

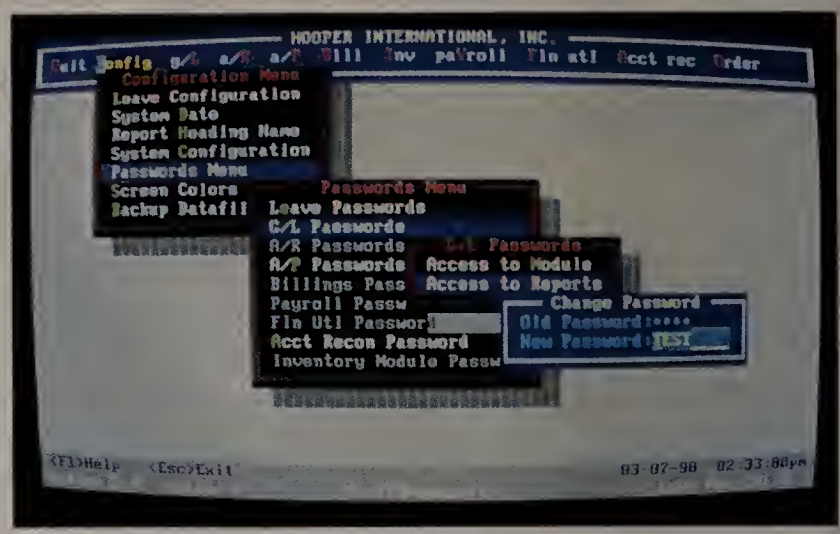
Small businesses may be small, but they're also numerous. Hooper International hopes to interest thousands of them in *Takin' Care of Business*, an accounting package designed for service-oriented companies with up to $5 million in annual revenue.

The menu-driven system is targeted at businesses that are making their first foray into automated accounting and lack the expertise of an experienced accountant. You can buy *Takin' Care of Business* as an integrated package or one module at a time, adding general ledger, accounts receivable, accounts payable, payroll, and accounts reconciliation as required. A financial utilities module for analyzing financial data is also available.

The general ledger module supports up to 2000 accounts, as do both the receivables and payables modules; payroll will support up to 1000 employees. All the basic reports are available, including a balance sheet and income statement, and you can chart financial data in bar, line, or pie graphs. There's no separate report writer, however, for more detailed reporting capabilities.

Modules range in price from $14.95 for accounts reconciliation to $49.95 each for general ledger and payroll. The six-module set sells for $219.70 for single users and $249 for the network version. The retail price includes free unlimited technical support, a newsletter, and a CompuServe subscription. The software requires DOS 2.0 or a later version, 640K of RAM, and a hard disk. A 286 or 386 is recommended. Hooper Int'l, Inc., P.O. Box 502000, Colorado Springs, CO 80949; 800/245-7789. —*Roberta Furger*

Reader service no. 702



An accounting system whose accent is on ease of use, Takin' Care of Business can be bought a module at a time or as an integrated package.

PanaSync C1381

Economical High-Resolution Monitor

Panasonic's PanaSync C1381 display can help you pick out the finest details of *Windows 3.0*, desktop publishing packages, or other demanding graphics software without knocking you to the floor when you hear the price. The color monitor gives you resolutions of 1024 by 768 interlaced and 800 by 600 noninterlaced for $699—not too much more than you pay for VGA.

The multiscan C1381 will wring the most from even the latest fast-refresh super-VGA controller cards. It automatically scans and adjusts to horizontal frequencies from 30 Hz to 37 Hz and vertical frequencies from 50 Hz to 90 Hz. It's compatible with 8514/A, super-VGA, VGA, and lesser PC display standards. The 14-inch nonglare screen has .28mm dot pitch. Up-front controls allow user adjustment of brightness, contrast, vertical and horizontal size, and centering.

The $699 price includes a 6-foot cable with 15-pin connector and tilt-and-swivel display. Panasonic Communications & Systems Co., 2 Panasonic Way, Secaucus, NJ 07094; 800/742-8086, 201/348-7000. —*Mark Henricks*

Reader service no. 715

DeskJet 500

A Quiet, Compact Ink Jet for Less

Hewlett-Packard's DeskJet and DeskJet Plus have proven to be a devastating one-two punch to dot matrix printers, delivering vastly improved print quality for a scant premium over 24-pin prices. Now HP wants to deliver a knockout blow with a new high-performance model, the DeskJet 500, at a price more than 25 percent below the DeskJet Plus's $995.

The $729 printer is more compact, and at a mere 43db, more than five times as quiet as impact printers; a new ink formula overcomes the principal objection to ink jet technology—an annoying tendency to produce pages that smeared with even a light touch. The new water-resistant ink cartridges aren't perfect, but they do much better on the greasy-thumb test. The $20 cartridge ships with the new printer, and you can order it directly from HP, but it isn't expected to be available in retail stores until December.

The DeskJet 500's engine cranks out pages at the same rate as before: 3 pages per minute for text or 120 characters per second in letter quality, and a blistering 240 cps in draft mode. Graphics print at 2 pages per minute.

DeskJet Plus owners who upgrade to the new model will recognize the resident portrait and landscape Courier faces, but they'll also get built-in CG Times and Letter Gothic, kerned to match the output of a LaserJet. The new model has the same two font cartridge slots as its predecessor, while four new $79 cartridges (Dom Casual, Brush, Garamond, and a Century Schoolbook/Triumvirate combo) are exclusive to the newest DeskJet. These fonts come in addition to the nine fixed font cartridges and two soft font disks already available.

Windows 3.0 users get the biggest font bonanza. The environment supports the DeskJet's internal fonts, and in November an HP-developed driver will let the DeskJet 500 rotate and scale any disk-based LaserJet typeface in sizes from 4 to 127 points.

Current DeskJet owners can upgrade by shipping their old printer back to HP along with $175 (DeskJet Plus) or $225 (DeskJet). Hewlett-Packard, 19310 Pruneridge Ave., Cupertino, CA 95014; 800/752-0900. —*Ed Bott*

Reader service no. 721

If you're thinking about utilities, consider the utilities that do the thinking for you.

The Norton Utilities® 5.0 is more than just a powerful new version of a classic, award-winning bestseller.

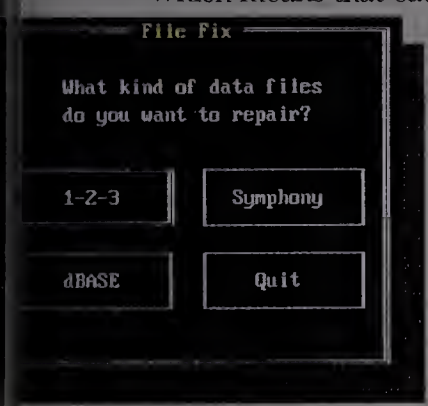
It's the best thing to happen to PC utilities since we invented them in the first place.

That's because the people who brought you the legendary *UnErase*® and the revolutionary *Norton Disk Doctor*® have cooked up another remarkable innovation.

Intelligence.

It's built in to each and every one of the 20 utilities in this package.

Which means that each and every person who uses a PC—yes, even outright novices—can use the Norton Utilities to perform a variety of sophisticated support tasks.



The new Norton Utilities corrects problems other programs can't even detect. File Fix, *for example, fully reconstructs damaged 1-2-3, Symphony® and dBase files.*

Without the aid of a sophisticated support person.

Whether you want to maximize your PC's performance, minimize the chances of data loss and disk failure, or just get yourself out of a jam, you need to get yourself the new Norton Utilities.

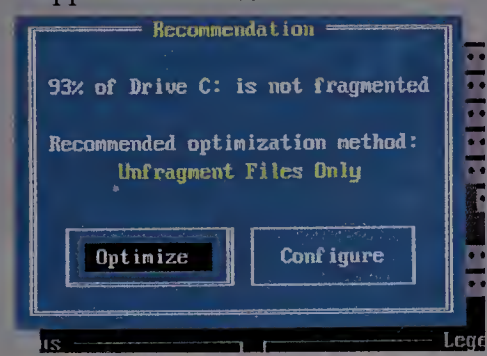
Having the Utilities on your disk—or on your network—is like having Peter Norton at your elbow.

In fact, our enhanced user interface includes a unique new feature that works with you just the way Peter would.

Advise not only helps you identify your particular problem, it also recommends the appropriate course of action and executes the appropriate utility.

Automatically.

If the problem happens to be a corrupted hard disk, you'll see right away why the *Norton Disk Doctor II* is the most sophisticated utility of its kind in the world.



Now everyone from novices to experts can safely perform in-depth preventative maintenance and file recovery with a few simple mouse clicks.

Disk Doctor II finds and fixes problems other programs can't even detect. Yet it's simple enough for beginners to use.

The same goes for *File Fix*,™ an invaluable new tool that delves into the complex internal structure of your Lotus® 1-2-3,® dBase® and compatible spreadsheets and databases to make repairs that would stymie even a skilled technician.

UnErase performs data searches automatically and shows you a list of all the deleted files on your disk. So all you have to do is point and shoot.

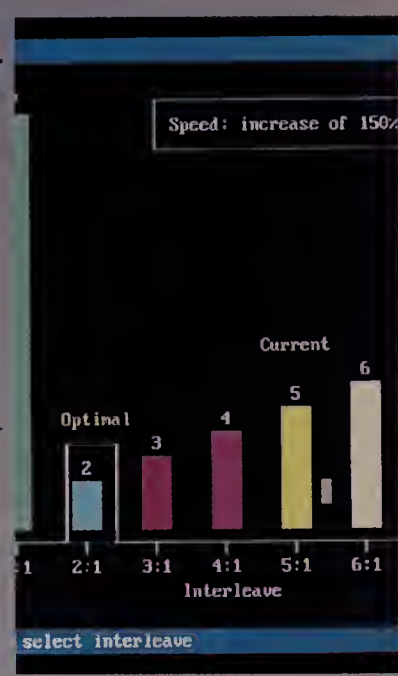
It also does something no other program can do: recover deleted files from anywhere on your network.

If all of that sounds like reason enough to join the army of happy Norton Utilities users, it is.

And we haven't even told you about the feature those users have most often requested.

Calibrate™ analyzes and adjusts the "interleave" of your hard disk, optimizing the read/write speed and dramatically improving performance.

Of course, when it comes to improving performance, there's nothing quite like *Speed Disk*.™



Our new Calibrate utility revitalizes demagnetized disk areas and uses a low-level formatter to adjust your disk when the heads go out of alignment.

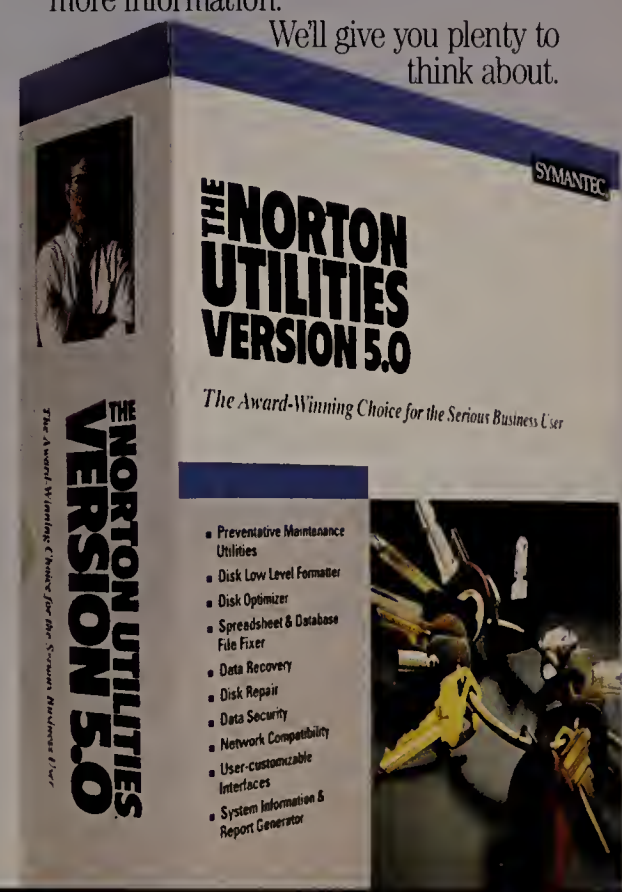
It not only offers four different optimization methods, it figures out exactly how fragmented your disk has become and tells you which method to use.

Nobody has to tell you how serious it is when the power goes out. So you'll be glad to know that *Calibrate, Speed Disk* and *Disk Doctor II* are designed with a unique failsafe architecture.

If you lose power during a procedure, you won't lose your data.

So don't lose another minute. Call 1-800-343-4714 Ext. 702W and demand more information.

We'll give you plenty to think about.



The new Norton Utilities 5.0 from Symantec

Circle 203 on reader service card

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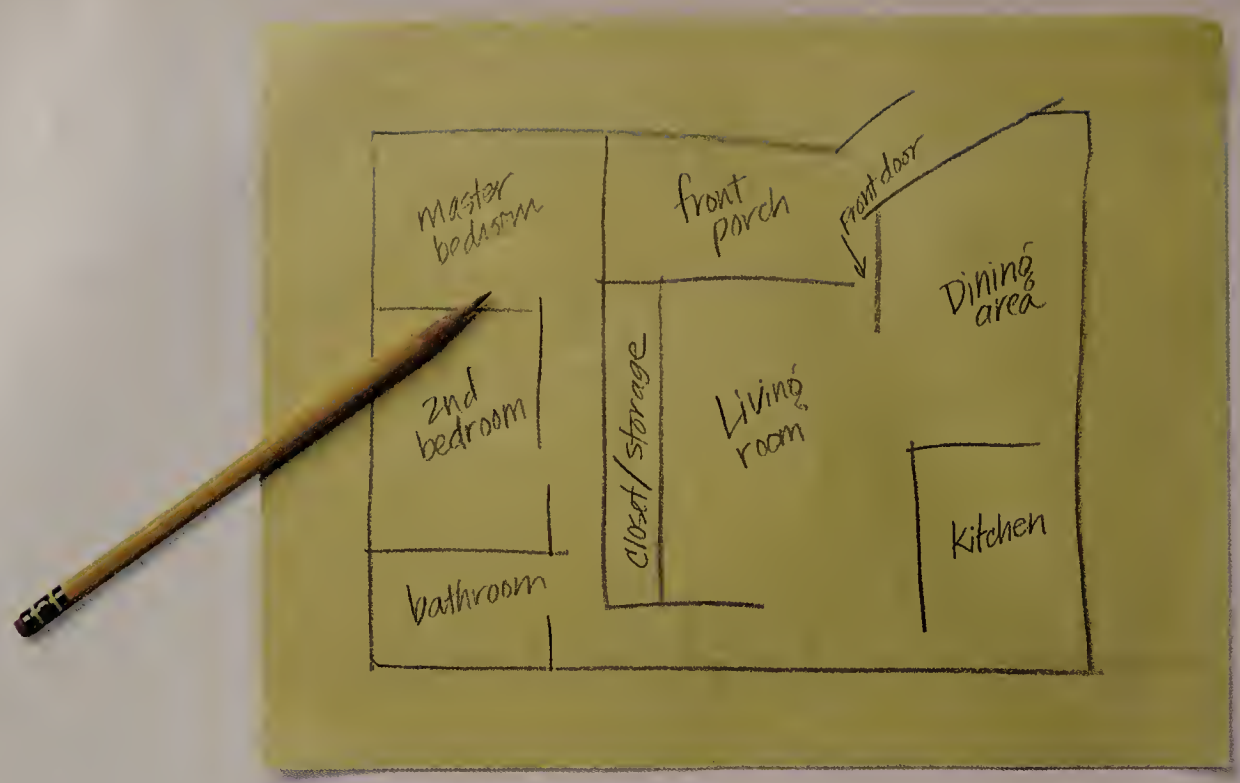
23 Symbol Libraries for under $50.00
Call 1-800-223-2521 for details



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Circle 99 on reader service card

UPDATE

New Versions of Your Favorite Products

PlanPerfect 5.1

Version 5.1 of PlanPerfect has a better relationship with other WordPerfect products, sharing printer drivers and fonts with DrawPerfect and tables and text with WordPerfect.

PlanPerfect 5.1 works better with other WordPerfect products. The new version can directly import or export *WordPerfect* tables and text, share printer drivers, and share fonts and graphs with *DrawPerfect*. *PlanPerfect 5.1* also gains support for a mouse and long file names. Upgrades to the $495 version 5.1 range from $39 to $75. WordPerfect Corp., 1555 N. Technology Way, Orem, UT 84057; 800/451-5151, 801/225-5000.

Reader service no. 722

XtreeNet 2.0

Version 2.0 of *XtreeNet*, the network version of the Xtree Company's tree directory display/DOS shell, adds enhancements particularly useful to NetWare network system managers, including the ability to view and manage the directories of any network node that has an enabling 6K to 12K TSR loaded. *XtreeNet 2.0* can compress and decompress files in either PKARC or *Xtree* format and peer into files of diverse formats. Version 2.0 sells for $249 per NetWare ELS server and $495 each for Advanced, SFT, and NetWare 386 servers. Upgrades from earlier versions are $95. Xtree Company, 4330 Santa Fe Rd., San Luis Obispo, CA 93401; 800/634-5545, 800/551-5353 (California), 805/541-0604.

Reader service no. 723

Word for Word Professional 4.2

Version 4.2 of *Word for Word Professional*, the leading word processing file conversion utility, includes automatic recognition of the format of the source file. Also new is support for six more file formats, including *Excel 2.1* and all *DisplayWrite* versions. Mastersoft, 6991 E. Camelback Rd. #A-320, Scottsdale, AZ 85251; 800/624-6107, 602/970-0706 (fax).

Reader service no. 724

3+Open Connection for NetWare

3+Open Connection for NetWare gives DOS users access to files, applications, and resources on networks that mix *LAN Manager* and NetWare network operating systems. Taking advantage of 3Com's Demand Protocol Architecture, 3+Open Connection for NetWare lets applications written to NetWare's IPX protocol run without alteration alongside *LAN Manager* applications such as *3+Open Mail*. The product is available as a single-user license for $250, as a ten-user server license for $995, or as an unlimited-user server license for $2195. 3Com Corp., 3165 Kifer Rd., Santa Clara, CA 95052-8145; 800/638-3266.

Reader service no. 725

MapInfo 4.5

The mapping/data analysis tool *MapInfo 4.5* supports the updated TIGER maps created by the Census Bureau for the 1990 census, which will provide the latest data on U.S. cities and towns as well as a higher level of detail for rural areas. Version 4.5 offers easier import of CAD renderings of all kinds, new drawing tools, and an updated version of its MapCode application language, which can more easily invoke other DOS programs. Upgrades to the $995 *MapInfo 4.5* are $145. *StreetInfo* maps are available for $225 per county. MapInfo Corp., 200 Broadway, Troy, NY 12180; 800/327-8627, 518/274-8673.

Reader service no. 726

AutoSketch 3

AutoSketch 3, the latest update of Autodesk's low-end CAD drawing package, includes a new text editor and a macro function for automating commonly used commands. Oriented toward schematics, floor plans, and other simple but high-precision designs, *AutoSketch 3*'s new drawing tools include polylines, ellipses, pattern fills, and scroll bars available from pulldown menus. It sells for $249. Updates are $50. Autodesk Inc., 11911 N. Creek Pkwy. S, Bothell, WA 98011; 800/223-2521, 206/487-2233.

Reader service no. 727

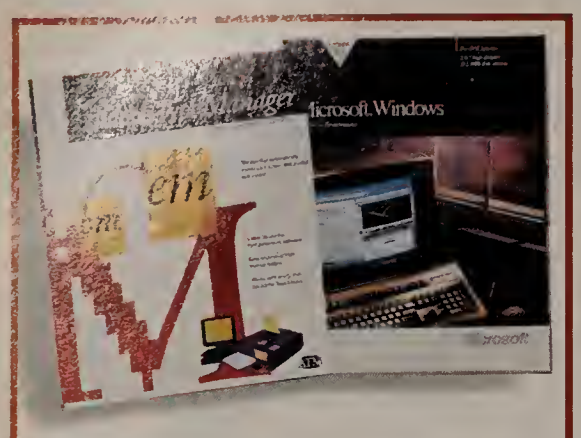
Picture Publishing Plus

Astral Development has released two *Windows 3.0* versions of its sophisticated image editing package—one of them in living color. Both *Picture Publisher 2.1* and *Picture Publisher Plus* take advantage of *Windows 3.0*'s memory management and device support capabilities; *Plus* adds the ability to manipulate 24-bit color files as well as complex gray-scale images. *Picture Publisher 2.1* costs $595, *Plus* $695; upgrades from *2.0* to *Plus* are $99. Astral Development Corp., Londonderry Sq. #112, Londonderry, NH 03053; 603/432-6800.

Reader service no. 728

For more information about any product, contact the manufacturer or circle the number on the reader service card.

Have you heard our



Adobe Systems ... NCP
7902 ☐ *Adobe Type Manager for Windows and Microsoft Windows 3.0*—Clean up that jagged type with Adobe Type Manager and Windows 3.0. Two hot programs for one great price. Specify media size ..... $149.

☐ 3½″ format available from us. Specify when ordering.
▣ package includes both 5¼″ and 3½″ disks.
⊞ 3½″ format available from manufacturer by request. Call us for details.
CP—copy-protected; **NCP**—not copy-protected.

The four-digit number next to each product is the product's ITEM NUMBER. Please refer to this number when ordering. Thank you.

SOFTWARE

We only carry the latest versions of products. Version numbers in our ads are current at press time.

Products listed here in red are Microsoft Windows Applications.

Corel Systems ... NCP
5506 ☐ *CorelDRAW! 1.2*—The world's leading PC illustration software now comes with even more value: CorelTRACE, over 100 typefaces, over 300 clip-art images, a Pantone license—all bundled in for free ..... $329.

Adobe Systems ... NCP
6591 ▣ Illustrator Windows 1.0 ..... $279.
7547 ▣ Adobe Type Manager for Windows 59.
7902 ☐ Adobe Type Manager for Windows and Microsoft Windows 3.0 ..... 149.
6590 ▣ Streamline Windows 1.0 ..... 229.
7392 ▣ Adobe PostScript Cartridge .... 249.
(Entire Adobe Type Library, from 1 to 133 is available. Call for more information.)

Aldus ... NCP
1332 ☐ PageMaker 3.01 ..... 499.

Alpha Software ... NCP
5104 ▣ Alpha Four 1.1 ..... 319.

Application Techniques ... NCP
1214 ▣ Pizazz Plus 2.0 ..... 69.

ASD Software ... NCP
7847 ▣ Planisoft 1.0 ..... 145.

Ashton-Tate ... NCP
4450 ☐ dBASE IV 1.1 ..... 499.

Asymetrix ... NCP
7384 ▣ Toolbook 1.0 for Windows ..... 309.

ASD Software ... NCP
7847 ▣ *Planisoft 1.0*—Coordinate agendas, find available time-slots for appointments, keep track of dealines & priorities, distribute tasks, optimize resources, share information between PCs & Macs over any LAN. $145.

Avery ... NCP
6006 ▣ Label Pro 1.0 ..... 49.
7336 ▣ Label Pro 1.0 for Dot Matrix ..... 49.

Bitstream ... NCP
7568 ▣ FaceLift 1.0 ..... 59.
▣ Collections: Newsletters, Flyers, Books & Manuals, Reports and Proposals, Presentations or Spreadsheets *each* 129.
▣ Fontware ..... *each* 89.

Borland International ... NCP
7357 ⊞ Turbo C++ 1.0 Professional .... 159.
7356 ⊞ Turbo Pascal Professional 2nd Ed. 179.
6242 ▣ Quattro Pro 1.0 ..... 325.
1514 ▣ Paradox 3.0 ..... 469.

Broderbund ... NCP
1434 ☐ New Print Shop *(NCP)* ..... 39.

ButtonWare ... NCP
6419 ▣ PC-File 5.0 ..... 89.

Caere ... NCP
6004 ▣ Omnipage 386 2.1 ..... 599.

Central Point ... NCP
5039 ▣ PC Tools Deluxe 6.0 ..... 89.
5038 ☐ Copy II PC 5.0 ..... 27.

Checkfree
6360 CheckFree *(electronic checking srv.)* $25.

Chipsoft ... NCP
1663 ▣ TurboTax 8.0 for 1990 Taxes ..... 45.

CompuServe
7546 DOS Membership Kit ..... 23.

Concentric Data Systems ... NCP
6575 ▣ R & R Relational Report Writer 3B 109.

Corel Systems ... NCP
5506 ☐ CorelDRAW! 1.2 ..... 329.

Custom Applications ... NCP
7474 ☐ Freedom of Press 2.2 ..... 255.

Data Storm ... NCP
4798 ▣ PROCOMM PLUS 1.1 ..... 65.

DCA ... NCP
2908 ☐ Crosstalk XVI 3.71 ..... 119.
5611 ☐ Crosstalk for Windows 1.1 ..... 129.

Delrina Technology ... NCP
7351 ▣ PerFORMPRO 1.0 for Windows. 299.

Fifth Generation Systems ... NCP
7725 ▣ Direct Access 5.0 ..... 59.
2762 ☐ Mace Utilities 1990 ..... 99.
7795 ▣ Disklock 1.0 ..... 109.
3950 ▣ Fastback Plus 2.1 ..... 119.

FNN Data Broadcasting
7005 ▣ NewsReal 1.0 ..... 99.

FormWorx ... NCP
5810 ☐ FormWorx with Fill & File 2.5 .... 85.
7311 ▣ Form Publisher for Windows 1.2. 145.

Fox Software ... NCP
6188 ⊞ FoxPro 1.02 ..... 489.

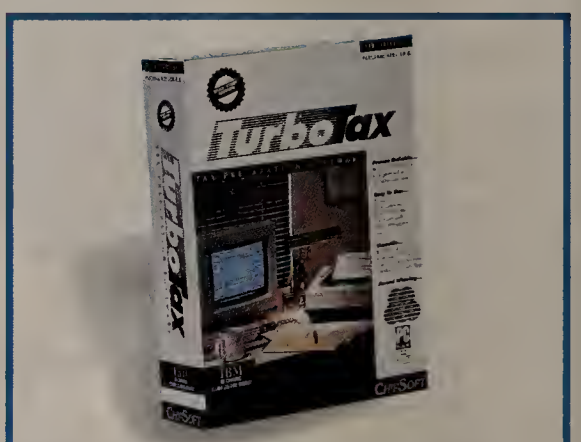
Franklin Software ... NCP
7071 ▣ Language Master 2.0 ..... 59.
7416 ▣ Language Master 3.0 for Windows 59.

Funk Software ... NCP
2228 ☐ Sideways 3.3 ..... 52.
7380 ▣ P.D. Queue 1.0 *(print spooler)* ... 55.

Generic Software ... NCP
2265 ⊞ Generic CADD Level 3 1.1.3 ... 225.

Great American Software ... NCP
4880 ☐ One Write Plus Acct. Sys. 2.06 .. 179.
5825 ▣ Money Matters 1.0 ..... 55.

Harvard Associates ... NCP
2324 ⊞ PC Logo 3.0 ..... 59.



Chipsoft ... NCP
1663 ▣ *TurboTax 8.0 for 1990 Taxes*—The best-selling, easiest-to-use and most complete software for preparing individual tax returns. TurboTax provides on-line help, IRS instructions and comprehensive tax assistance $45.

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7389 ▣Windows Express 3.0 ..... $55.
7383 ▣First Apps 1.0 ..... 55.
Hilgraeve ... NCP
2323 ▣HyperACCESS/5 1.1 *(DOS & OS/2)* 115.
IBM ... NCP
6599 □Current 1.1 ..... 239.
Individual Software ... NCP
6222 ▣Resume Maker 1.1 ..... 29.
Inset Systems ... NCP
7298 ▣Hijaak 2.0 ..... 99.
7300 ▣Inset Plus Hijaak ..... 125.
Intuit ... NCP
2426 ▣Quicken 3.0 ..... 39.
Isogon ... NCP
7478 ▣FontSpace 2.0 ..... 59.
Laser Go ... NCP
7635 □Go Script Plus 3.0 ..... 189.
LaserTools ... NCP
6882 ▣PrintCache 2.3 ..... 99.
Lord Publishing ... NCP
5191 ▣Ronstadt's Financials 1.02 ..... 75.
Lotus ... NCP
5417 □1-2-3 3.1 ..... call
5653 □1-2-3 2.2 ..... 349.
5134 ▣Magellan 2.0 ..... 119.
MECA ... NCP
4603 ▣Andrew Tobias' Tax Cut-1990 Taxes 49.
7002 ▣Home Lawyer 1.0 ..... 69.
2798 □Managing Your Money 6.0 ..... 135.
Microcom ... NCP
7649 ▣Virex 1.1 ..... 79.
6234 □CarbonCopy Plus 5.2 ..... 119.
Micrografx ... NCP
7683 □Charisma 1.0 ..... 349.
Micro Logic ... NCP
6787 ▣Info Select 1.1 ..... 55.
Microlytics ... NCP
2731 □GOfer 2.0 ..... 45.
Microsoft ... NCP
7882 □Productivity Pack for Windows ... 45.
7010 □Windows 3.0 ..... 99.
7388 ▣Project for Windows 1.0 ..... 469.
7387 ▣PowerPoint for Windows 1.0 ..... 329.

2904 □Works 2.0 ..... $99.
2901 □Word 5.0 ..... 209.
6195 ▣Word for Windows 1.1 ..... 329.
2856 ▣Excel 2.1 ..... 329.
2894 □QuickBASIC 4.5 ..... 69.
2853 ▣C Compiler 6.0 ..... 339.
Multisoft ... NCP
4925 □PC-Kwik Power Pak 1.5 ..... 79.
Nolo Press ... NCP
2982 □WillMaker 4.0 ..... 39.
Norton-Lambert ... NCP
4928 □Close-Up Customer/Terminal 3.0 135.
4929 □Close-Up Support/ACS 3.0 ..... 165.
PC Globe ... NCP
5902 □PC Globe 4.0 ..... 39.
5900 □PC USA 2.0 ..... 39.
Personics ... NCP
4384 ▣Ultravision 2.0 ..... 79.
7048 ▣Monarch 1.0 *(Data Mgmt. Tool)* . 319.
PowerUp ... NCP
7860 ▣Calendar Creator Plus ..... 45.
7858 ▣Express Publisher 2.0 ..... 89.

Bitstream ... NCP
7568 ▣*FaceLift 1.0*–Fast & easy-to-use, scales screen & printer fonts to any size. 13 typefaces to give you professional documents instantly. Superb laser output & near laser-quality output for dot matrix printers . $59.

Funk Software ... NCP
2228 □*Sideways 3.3*–Rotates your spreadsheets 90° as they print ..... $52.
7380 ▣*P.D. Queue 1.0*–Lotus add-in that saves time by spooling Sideways & Allways output to hard disk & printing in the background 55.

Revolution Software ... NCP
4480 ▣VGA Dimmer 2.01 *(screen saver)* . 29.
RightSoft ... NCP
4155 ▣RightWriter 4.0 ..... 55.
Samna ... NCP
5799 ▣Ami Professional 1.2 ..... 309.
Softlogic Solutions ... NCP
3542 □Software Carousel 4.0 ..... 55.
Software Publishing ... NCP
3499 □PFS:First Publisher 3.0 ..... 99.
3478 □PFS:First Choice 3.02 ..... 105.
3496 □Professional Write 2.2 ..... 179.
3482 □Harvard Graphics 2.3 ..... 359.
Spinnaker ... NCP
7604 ▣Plus for Windows 1.0 ..... 289.
Symantec ... NCP
3152 ▣Norton Commander 3.0 ..... 105.
6397 ▣The Norton Backup 1.1 ..... 105.
3146 ▣The Norton Utilities 5.0 ..... 125.
3425 □Q&A 3.0 ..... 229.
3431 □Timeline 4.0 ..... 469.

FormWorx ... NCP
7311 ▣*Form Publisher for Windows 1.2*–Desktop publishing designed especially for creating professional-quality forms. Use unique object-oriented design techniques & import graphics. Over 600 forms included! . . $145.

Precision Software ... NCP
6600 ▣Superbase 4 for Windows 1.2 . . 469.
Qualitas ... NCP
7539 □386MAX 5.0 ..... 75.
Quarterdeck ... NCP
6422 □QRAM 1.0 ..... 49.
3221 □Expanded Memory Mgr. 386 5.1 . 59.
3220 □DESQView 2.3 ..... 79.
4586 □DESQView 386 5.1 ..... 129.
Reality Technologies ... NCP
6572 ▣WealthBuilder 1.1 ..... 145.
Reference Software ... NCP
4396 ▣Grammatik IV 1.0 ..... 52.
7483 ▣Grammatik for Windows 1.0 ..... 52.

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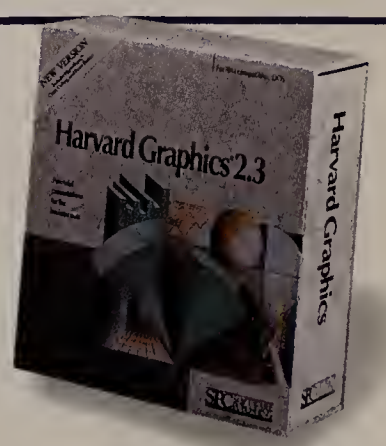

Software Publishing ... NCP
3482 □*Harvard Graphics 2.3*–New version! Built-in drawing tools and other new features make this superior graphics and charting program a top performer. Graphically the best choice ..... $359.

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Makes unpacking

Microsoft ... NCP
7882 ☐*Productivity Pack for Windows*–Includes: Learning Windows–a comprehensive tutorial, Working Smarter–on-line productivity tips, and Quick Troubleshooter–helps solve common Windows problems ..... $45.

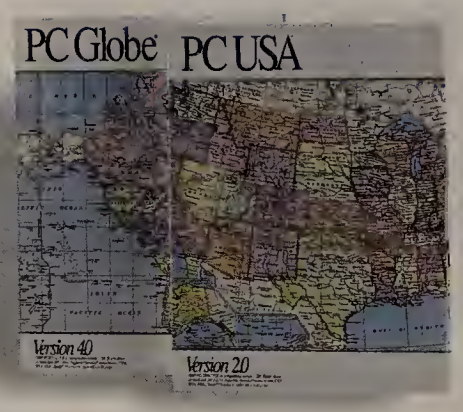
Systems Compatibility ... NCP
6564 ☐Software Bridge 4.1 ..... 79.
TIMESLIPS ... NCP
2987 ☐Timeslips III 4.0 ..... 195.
6994 ☐PercentEdge 1.0 ..... 69.
Timeworks ... NCP
6253 ◉Publish-It! 1.1 ..... 115.
TOPS ... NCP
6675 ☐TOPS Network Bundle 3.0 ..... 159.
3720 Flashcard 2.1 *(AppleTalk network card; 1 year warranty)* ..... 155.
Touchstone Software ... NCP
7420 ◉Check It 3.0 ..... 89.
Traveling Software ... NCP
5179 ◉LapLink III 3.0 ..... 95.
True BASIC ... NCP
3561 ◉True BASIC 2.1 ..... 52.
Vericomp ... NCP
6771 ◉Memory Master 1.1 ..... 45.
Volkswriter ... NCP
6246 ☐Volkswriter 4 1.02 ..... 109.

Touchstone Software ... NCP
7420 ◉*Check It 3.0*–Diagnostic software will help find and get rid of system problems. Run over 160 tests on all major system components. Results can be logged to disk or printer with suggestions on fixing simple troubles .. $89.

West Lake Data Corp. ... NCP
7577 ☐PC-FullBak+ 1.12 ..... $52.
7574 ◨PathMinder+ 1.0 ..... 79.
7575 ◨ValuePak *(includes 4 programs)* .. 69.
WordPerfect Corp. ... NCP
7781 ◉LetterPerfect 1.0 ..... 135.
3804 ☐WordPerfect 5.1 ..... 265.
6685 ◉DrawPerfect 1.1 ..... 279.
WordStar International ... NCP
6791 ☐WordStar Prof. 6.0 ..... 279.
Xerox ... NCP
7796 ◉Ventura Publisher for Windows 3.0 569.
XTREE ... NCP
6161 ◉XTreePro Gold 1.4 ..... 75.
ZSoft ... NCP
7016 ◉PC Paintbrush IV Plus 1.0 ..... 119.
7014 ◉PC Paintbrush Plus for Windows 1.12 89.

RECREATIONAL/EDUCATIONAL

Broderbund ... CP
5701 ☐Where/Time Carmen Sandiego? . 32.
5851 ◉SimCity ..... 33.



PC Globe ... NCP
5902 ☐*PC USA 2.0*–Instant profiles on all 50 states and Puerto Rico, including maps, graphics, and data ..... $39.
5900 ☐*PC Globe 4.0*–Provides profiles of 177 countries. Exports to many programs .. 39.

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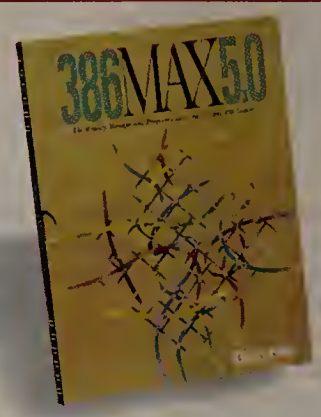
5804 ◉Deluxe Paint II *(Enhanced)* ..... 89.
HyperGlot ... NCP
7849 ☐Word Torture - French ..... 29.
7853 ☐Word Torture - Spanish ..... 29.
Microsoft ... NCP
2858 ☐Flight Simulator 4.0 ..... 39.
Penton Overseas ... NCP
◉VocabuLearn/ce Levels I & II (French, Italian, German, Spanish, Russian, Hebrew and Japanese) ..... *each* 39.
Sierra On-Line ... CP
6023 ◉Leisure Suit Larry III ..... 39.
6796 ◉Codename: Iceman ..... 39.
6972 ◉Conquests of Camelot ..... 39.
Software Toolworks ... NCP
6436 ◨Hunt for Red October ..... 20.
4659 ◉Chessmaster 2100 *(CP)* ..... 35.
Stone & Assoc. ... NCP
7564 ◉Young Math *(ages 5 to 8)* ..... 22.
3439 ◉2nd Math *(ages 7 to 16)* ..... 27.



Qualitas ... NCP
7539 ☐*386MAX 5.0*–Powerful new MAXIMIZE feature finds and uses all the memory you paid for. Automatic install makes this industry-standard memory manager indispensable for all level of 386 users . $75.

Toyogo ... NCP
7676 ◉Go Master Deluxe ..... 89.
True BASIC, Inc. ... NCP
◨Kemeny/Kurtz Math Series. *each* 45.

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Manufacturer's standard limited warranty period for items shown is listed after each company name. Some products in their line may have different warranty periods.

American Power ... 2 years
7108 APC Smart-UPS 400 ..... 339.
6811 360SX *(stand-by power source)* ... 219.
7107 450AT *(stand-by power source)* ... 279.
7106 520ES *(stand-by power source)* ... 329.
AST Research ... 2 years
1299 SixPakPlus 384k C/S/P ..... 179.
6795 SixPak 286 512k ..... 179.
4107 RAMpage Plus 286 512k ..... 419.
Boca Research ... 5 years
7001 BOCARAM/AT PLUS *(0-8 Meg) (LIM 4.0 extended)* ..... 125.
7061 BOCARAM/XT 0K *(0-2 Meg, LIM 4.0)* 99.
7135 TophAT *(16-bit backfill 512K to 640K)* 99.
6998 I/O Board for AT ..... 59.
6999 I/O Board for Microchannel S/S/P . 109.
6995 SuperVGA *(800 x 600, 16/8 bit)* ... 115.
7026 1024 VGA *(16 bit non-interlaced)* .. 149.
Bravo Communications
7400 2 Pos. Laser Compatible Switch Box 109.
Brother International ... 1 year
5787 HL-8e Laser Printer *(HP2 comp.)*. 1399.
Canon ... 1 year
7894 BJ-10e BubbleJet Printer *(4.6 lb.)* . 349.
7896 Sheet feeder for BJ-10e ..... 75.
CH Products ... 1 year
7341 Gamecard III Plus *(for Microchannel PS/2s)* ..... 49.
7340 Flight Stick *(includes Falcon F-16)* .. 49.
7345 Rollermouse *(Trackball) serial* 85. *bus* 99.
Compucable ... 2 years
1604 2-Position switch box ..... 25.

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Above Boards—FREE Quarterdeck QRAM and Manifest with any Above Board or piggyback, now through December 31, 1990! ..... **see Intel listing for prices.**

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7358 Command Center ..... 93.
Glass Filter Plus *(specify size)* .. ea. 65.

Datadesk ... 3 years
6901 Switchboard ..... 175.

Epson ... 1 year
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1906 FX-850 *(80 col., 264 cps, 9 pin)* ... call
1904 FX-1050 *(136 col., 264 cps, 9 pin)* .. call
5183 LQ-510 *(80 col., 180 cps, 24 pin)* ... call
1930 LQ-850 *(80 col., 264 cps, 24 pin)* .. call
1917 LQ-1050 *(136 col., 264 cps, 24 pin)* call
5184 LX-810 *(80 col., 180 cps, 9 pin)* .... call
1052 Printer-to-IBM cable *(6 feet)* ..... 15.
7775 Equity LT-286e Laptop ..... 1995.
7774 Equity LT-386SX Laptop ..... 3069.
Removable Hard Drives for Epson Laptops
7776 *20 Meg* .. 499. 7777 *40 Meg* .. 699.

5th Generation ... 1 year
7157 Logical Connection Plus 512k .... 599.

Hayes ... 2 years
2307 Smartmodem 2400 ..... 349.
7391 Ultra 9600 Modem ..... 899.

Hewlett-Packard ... 1 year
6754 LaserJet III *(w/toner)* ..... 1699.
6582 LaserJet IIP *(w/toner)* ..... 1069.

Intel ... 5 years
6421 2400B MNP Internal Modem .... 199.
2352 2400B Internal Modem 2 *(for PS/2)* 249.
5119 2400 Baud External Modem ..... 179.
6420 2400EX MNP Modem ..... 229.
7880 9600EX Modem ..... 549.
2346 Inboard 386/PC w/1 Meg *(w/free Ami)* 519.
4266 Above Board Plus 512k ..... 369.
4267 Above Board Plus I/O 512k ..... 399.
5336 Above Board Plus 8 2 Meg ..... 599.
5342 Above Board Plus 8 I/O 2 Meg ... 629.
4272 Above Board 2 Plus 512k ..... 469.
5396 Above Board MC 32 0k ..... 359.
7782 SatisFAXtion ..... 399.
7552 NetPort ..... 489.
MATH COPROCESSORS
7385 80287XL *(16 MHz 80286 CPU's)* ... 199.
4750 80387SX *(16 MHz 80386SX CPU's)* $309.
2371 80387 *(16 MHz 80386 CPU's)* ..... 349.
2372 80387-20 *(20 MHz 80386 CPU's)* 399.

Kensington Microware ... 1 year
7899 Expert Mouse *serial* .. 119. *bus* .. 129.

Key tronic ... 3 years
4518 101 Plus Keyboard ..... 99.

Kraft ... 5 years
5800 3 button Thunder Joystick ..... 29.
5802 Trackball ..... 59.

Logitech ... limited lifetime
5464 C9 Mouse for PS/2's ..... 69.
7768 C9 Mouse with Windows ..... 149.
5151 HiREZ Mouse *(C9)* ..... 85.
6029 Trackman *(Trackball) serial* 85. *bus* 89.
4297 ScanMan Plus *(hand scanner)* ... 185.

Micron Technology ... 2 years
7595 Intensify 2 Meg Expansion for HP LaserJet IIP or III ..... 175.
7012 Beyond Memory Board for PS/2 Model 70 *(2 Meg)* ..... 265.

Intel ... 5 years
80287XL & 80287XLT Math CoProcessors—Runs up to 50% faster than other 80287 math chips. The 80287XL works in virtually every 80286-based PC, and the 80287XLT is made especially for Compaq LTE/286.. **each $199.**

Microsoft ... lifetime
7597 Microsoft Mouse ..... 89.
2897 Mouse with Paintbrush ..... 109.
2898 Mouse with Windows 3.0 ..... 149.

MicroSpeed ... 1 year
6007 PC-TRAC Trackball *(includes a free copy of Welltris) serial* .... 75. *bus* .... 85.

Mouse Systems ... lifetime
5997 Trackball *(1 yr. wrnty.) serial* 75. *bus* 85.
7878 PC Mouse III ..... 99.

NEC ... 2 years
4799 Multisync 2A *(VGA Monitor)* ..... 499.
5085 Multisync 3D Monitor ..... 689.

Orchid Technologies ... 4 years
7512 ProDesigner VGA II *(1024 x 768)* .. 299.

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Intel ... 5 years
7880 *9600EX Modem*—Provides ultra-fast data communications without sacrificing compatibility. Supports V.32 & V.42 9600 bps operation, as well as MNP Level/5 and Hayes compatible 2400/1200/300 bps modes . **$549.**

PC Power & Cooling ... 1 year
REPLACEMENT POWER SUPPLIES
3202 Turbo Cool 150 *(25° - 40° cooler)* . 129.
3200 Silencer 150 *(84% noise reduction)* 115.

Pacific Data Products ... 1 year
6779 25 Cartridges in One! *(for LJ II, IIP, IID)* 275.
7072 25 Cartridges in One! *(for LJ III)* ..... 349.
Memory upgrade for LaserJet IIP/III
7054 *1 Meg* ... 149. 7055 *2 Meg* ... 199.
7753 *3 Meg* ... 279. 7759 *4 Meg* ... 339.
Memory upgrade for LaserJet II
6839 *1 Meg* ... 179. 6838 *2 Meg* ... 249.
7158 Pacific Page *(PostScript Cartridge for LaserJet IIP/III)* ..... 379.
6834 Pacific Page with free 2 Meg Memory Board *(for LaserJet II)* ... 379.
7632 Outlines I . 209. 7631 Outlines II . 209.

Practical Peripherals ... 5 years
3101 1200 Baud Internal Modem ..... 65.
3100 1200 Baud External Modem *(mini)* . 77.
3103 2400 Baud Internal Modem ..... 135.

Intel ... 5 years
2346 *Inboard 386/PC with Free Samna Ami*—Gives you 80386 processing power, 1 Mb RAM, and Samna's powerful Windows-based word processor (regularly at $129). 30 Day Money Back Guarantee..... **$519.**

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5286 2400 Baud Int. MNP Modem *(Lev. 5)* 175.
5285 2400 Baud Ext. MNP Modem *(Lev. 5)* 209.
4542 2400 Baud Internal Modem for PS/2 . 229.

Reflection Technology .. 1 year

7127 Private Eye *(virtual display)* . . . . . 499.

SAFE Power Systems ... 2 years

7913 Safe 650W . . . . . 459.
7914 Safe 800W . . . . . 599.
4560 Safe 1200W . . . . . 739.

Targus ... lifetime

4899 Nylon Laptop carrying case . . . . . 55.
6037 Premier leather carrying case . . . . 199.

TheComplete PC ... 2 years

5140 TheComplete Page Scanner. . . . . 549.
5828 TheComplete Communicator . . . . 449.

Tripp Lite ... 2 years

6199 Isobar 4-6 *(4 outlets, 6 ft. cord)* . . . . 49.
6200 Isobar 6-6 *(6 outlets, 6 ft. cord)* . . . . 59.

Video 7 ... 7 years

5883 1024i VGA *(includes 512k)*. . . . . 219.
4931 VRAM VGA 512k . . . . . 379.

SAFE Power Systems ... 2 years
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IOMEGA ... 1 year

5116 Bernoulli II Single 44 Meg Internal 995.
5113 44 Meg Cartridge Tripak *(5¼")*. . . 249.
2500 PC2B Controller . . . . . 229.
7551 Bernoulli II Transportable 44 Meg . 997.

Mountain Computer ... 1 year

2917 40-60 Meg Internal Tape Drive . . . 299.
5502 83-152M Ext. Tape Drive. . . . . 799.
5190 DC2000 Pre-formatted Cartridges ea. 35.

Pacific Rim ... 1 year

5009 1.2 Meg External . . . . . 209.
5010 1.2 Meg External *(for PS/2's)*. . . . . 215.
6602 1.44 External *(for PC/XT/AT)* . . . . . 239.

Plus Development ... 2 years

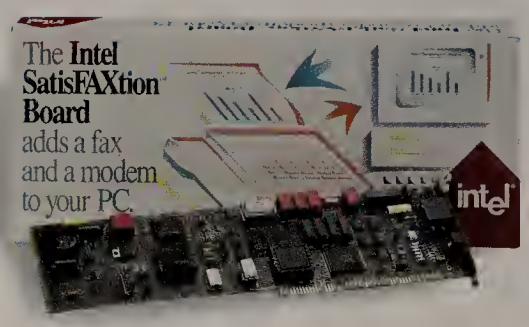
6425 Hardcard II 40 Meg *(19 ms)* . . . . . 399.
6424 Hardcard II 80 Meg *(19 ms)* . . . . . 699.

Seagate ... 1 year

2285 20 Meg Int. Hard Drive ST225 *(w/controller and cables, 65 ms)* . . 255.
2286 30 Meg Int. Hard Drive ST238R *(w/controller and cables, 65 ms)* . $269.
4554 40 Meg Int. HD ST251-1 (28 ms) . . 329.

TEAC ... 1 year

4951 720k Drive *(specify XT or AT, 3½")* . 75.
4670 1.44 Meg Drive for PC/XT *(3½")*. . . 89.
4326 1.44 Meg Drive for AT . . . . . 109.



Intel ... 5 years
7782 *SatisFAXtion*–Send and receive faxes from within most applications using the print command. Built-in 2400 bps MNP modem standard. Includes coupons for free PC Tools and Fax-It software. . . . . $399.

Canon ... 1 year
7894 *BJ-10e BubbleJet Printer*–Light weight, excellent print quality and a great price make this 4.6 lb. printer a winner. Choice of black or white. Optional sheet feeder . . . . . $349.

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Maxell ... lifetime

2789 5¼" MD2-D 360k Disks *(Qty. 10)* . . . . 12.
2790 5¼" MD2-HD 1.2Mb Disks *(Qty. 10)*. . 19.
2792 3½" DS/DD 720k Diskettes *(Qty. 10)*. . 14.
2793 3½" DS/HD 1.44Mb Diskettes *(Qty. 10)* 27.

Sony ... lifetime

3291 5¼" DS/DD 360k Disks *(Qty. 10)* . . . . 10.
3292 5¼" DS/HD 1.2Mb Disks *(Qty. 10)* . . . 19.
3297 3½" DS/DD 720k Diskettes *(Qty. 10)*. . 13.
3298 3½" DS/HD 1.44Mb Diskettes *(Qty. 10)* 22.
6659 QD 2000 Tape Cartridge. . . . . 19.

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6556 256k DRAMs *(100 nanosecond)*. . . call
5510 1 Meg x 9 SIMMs *(80 nanosecond)* call
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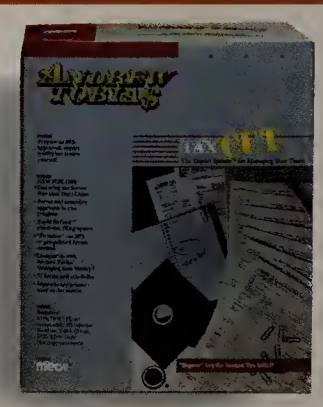

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Graphics Power for the Rest of Us

Now you don't have to be a graphics whiz to create professional presentations. The latest business graphics programs make it easy—with a host of tools that save time and ensure top quality, too.

Mike Smith-Heimer and John Walkenbach

Face it. In the business world, you're increasingly called upon to stand up before your peers and play a sophisticated version of show-and-tell. Of course, better communications means better business—an effective slide show or overhead presentation can sway a client or convince a boss.

The problem is that few managers have ample time to prepare. And even if you're not in a hurry, you may not have the expertise to do the job right. Most of today's presentation graphics packages provide all the tools to create a crowd-pleasing show, but if you're not an experienced hand at graphics, they may not do you much good.

Fortunately, some of the packages reviewed here are aimed at the business user who hasn't the time, talent, or inclination to spend an entire day prepping a pitch. They provide more canned color schemes, text templates, and clip art than ever before. More important, a few offer global controls over all the slides or overheads in a presentation, so you can easily create consistent backgrounds, change discrete elements, and rearrange images via a thumbnail view of the entire show. And new features such as built-in outliners and modules for generating handouts and speaker notes help you prepare all facets of a presentation.

Of the eight packages in this roundup (each priced at $495), only Microsoft's *PowerPoint for Windows* wins a Best Buy. Key to its victory are *PowerPoint*'s global controls and one-stop presentation aids—features also found in an upcoming Presentation Manager version of *Freelance* (see the preview of Lotus's *Freelance Graphics for OS/2* in this issue).

Buying Tips: Balancing the Big Three

Presentation graphics software balances three main functions: charting, enhancement, and presentation control. If you usually create graphs only for word processing or desktop publishing documents, presentation controls are superfluous. In fact, spreadsheets fill the bill just fine for some users (see the sidebar on *Quattro Pro*).

But when you find yourself in front of one tough crowd after another, a presentation package is a must. If you're new to the genre, the following buying criteria should help you make your buy decision. The "It's Show Time" sidebars illustrate how these features are used.

JOHN GREENLEIGH

FEATURES EVALUATION

Presentation Preparation Tools on the Rise

Microsoft PowerPoint for Windows wins a Best Buy thanks to its easy presentation controls, but Charisma is the clear winner in enhancements.

● Yes ○ No
◒ Deficient
▼ Limited only by available disk space

	Applause II 1.0	CA-Cricket Presents 1.2	Charisma 2.0	DrawPerfect 1.1	Freelance Plus 3.01	Harvard Graphics 2.3	Microsoft PowerPoint for Windows 2.0	35mm Express 4.3
Standard features								
Price	$495	$495	$495	$495	$495	$495	$495	$495
Macros	○	○	◒[1]	●	○	●	◒[1]	○
Context-sensitive help	●	●	●	○	●	●	●	●
Charting								
Imports 1-2-3 data	●	◒[2]	◒[3]	●	●	●	●	◒[4]
Imports Excel data	◒[5]	○	●	●	◒[5]	●	●	○
Chart gallery	●	●	●	○	○	●	●	○
Updates via spreadsheet link	●	○	●	○	●	●	●	○
Analytical functions	●	○	●	○	○	●	●	○
Bar/line/area/3-D pie charts	●	●	●	●	●	●	●	●
Combination bar/line charts	●	○	●	●	●	●	●	○
Scatterplots	●	●	●	●	●	●	●	○
Table charts	●	●	●	○	●	●	●	●
Organizational charts	●	○	○	○	○	●	●	○
High/low/close charts	●	○	●	●	●	●	●	○
True 3-D bar charts	●	○	●	○	○	●	●	○
Exploded slices in 3-D pie charts	●	●	●	○	◒[6]	○	●	●
Dual y-axis charts	●	○	●	●	●	●	●	○
Maximum data sets	10	4	16,384	12	8	8	127	12
Maximum points per data set (bar charts)	8000	20	16,384	6000	140	240	127	60
Maximum points per data set (line charts)	8000	20	16,384	6000	500	240	127	60
Enhancement								
Drop-shadowed objects	●	○	○	○	●	●	●	●
Drop-shadowed text	●	○	○	○	●	●	●	●
Rotates text	●	○	●	●	●	●	●	○
Arcs and polygons	●	●	●	●	●	●	●	●
Freehand drawing	●	●	●	○	●	●	●	●
Curve smoothing	●	○	●	●	●	●	●	●
Undo command	●	●	●	◒[7]	◒[7]	●	●	●
Breaks apart objects	●	●	●	●	●	●	●	●
Flips and rotates objects	●	○	●	●	●	●	●	●
Cuts and pastes between images	○	●	●	●	●	○	●	●
Aligns objects	●	●	●	●	●	●	●	●
Graduated shading	◒[8]	◒[8]	●	◒[8]	◒[9]	◒[9]	◒[8]	◒[9]
Displays graduated shading	●	●	●	◒[10]	○	○	●	○
Screen-capture utility	○	○	◒[1]	●	○	○	◒[1]	○
Imports CGM	●	●	●	●	●	●	●	●
Imports PCX	●	●	●	●	○	○	●	○
							BEST BUY	

	Applause II 1.0	CA-Cricket Presents 1.2	Charisma 2.0	DrawPerfect 1.1	Freelance Plus 3.01	Harvard Graphics 2.3	Microsoft PowerPoint for Windows 2.0	35mm Express 4.3
Enhancement (continued)								
Imports TIFF	●	●	●	●	●	○	◒[11]	○
Imports EPS	●	●	●	●	○	○	●	●
Text templates	●	●	●	●	○	●	●	●
Preset color schemes	11	0	20	0	0	11	5000	13
Built-in type families (for HP II)	2	9	13	21	9	9	3	2
Built-in typefaces (for HP II)	8	35	41	30	21	29	9	3
Clip-art images	400	60	2200	500	900	500	400	125
Number of fill patterns	19	15	39	63	14	11	22	63
Colors per palette	5000	256	256	256	15	16	16.8 million	63
Presentation controls								
Master slide	○	●	○	○	○	○	●	○
Global editing	○	●	○	○	◒[12]	○	●	○
Presentation outliner	○	●	○	○	●	○	◒[13]	○
Speaker notes generator	◒[14]	●	○	○	○	●	●	●
Handout generator	○	●	○	○	○	○	●	○
Automatic color to black-and-white conversion	●	●	○	●	●	●	●	●
Light table view	○	●	○	○	○	○	●	○
Spelling checker	○	○	○	○	○	●	●	○
Images per screen show	99	▼	▼	▼	100	90[15]	▼	32
Transition options	14	14	24	14	14	11	1	1
Creates run-time shows	○	○	○	●	●	◒[16]	●	○
Output								
Supports HP LaserJet, dot matrix, and PostScript printers	●	●	●	●	●	●	●	●
Supports HP HPGL-compatible plotters	●	●	●	●	●	●	●	●
Supports Bitstream fonts	●	○	●	○	●	○	●	○
Communications module included	●	●	●	○	○	●	●	●
Slide service links to								
Autographics	○	●	○	○	●	●	●	○
Genigraphics	○	○	○	○	○	○	●	○
MagiCorp	●[17]	○	●	●	●	○	●	●
Slidemasters	○	○	●	○	○	○	●	○
Export								
CGM	●	●	●	●	●	●	●	○
PCX	○	○	●	○	○	○	●	○
TIFF	○	○	●	○	●	○	●	○
EPS	○	○	●	●	●	●	●	●
							BEST BUY	

[1] Macros available through Windows 3.0 Macro Recorder.
[2] WKS files only.
[3] Imports values but not formula results.
[4] Data must first be saved as a 1-2-3 graph.
[5] SYLK format files only.
[6] Only via complex manual operation.
[7] Undelete only.
[8] Limited to backgrounds.
[9] Available only through slide service.
[10] In print preview only.
[11] Line drawings only; no gray-scale TIFF.
[12] Colors and fonts only.
[13] No built-in outliner, but can read Microsoft Word for Windows outlines.
[14] Limited to 20 characters per slide.
[15] Can nest slide shows to increase number of images.
[16] Extra-cost option.
[17] Via Ashton-Tate Graphics Service.

Charting One of the secrets of an effective presentation is selecting the right chart for the data. Most of these packages support mixed graphs (bars and lines), three-dimensional charts, scatterplots, and stock market graphs in addition to the usual bar, column, line, and pie charts. *Harvard Graphics* takes the lead, offering extras such as organizational charts and providing a convenient charting gallery where you can select from thumbnail images of each chart type.

Interaction with spreadsheet data is also vital. At a minimum, a program must import data from *1-2-3* and *Microsoft Excel*. If you often present the same chart with new data, it's helpful to "warm link" the two programs so that you can easily update a chart with fresh data. And you'll want the link to remain toasty even after you edit the chart.

Enhancement Rarely does your first stab at a graph yield exactly what you want, so a capable set of enhancement tools is essential. Besides basic editing features like color control and fill patterns, look for flexible object manipulation tools, including the ability to rotate and flip objects. A good set of drawing tools is also helpful—you may need to add free-floating text or create custom diagrams made up of boxes, circles, and polygons.

But why draw when you can borrow? Clip-art libraries are standard to these packages, but some (like *Charisma*'s) are more extensive and of higher quality. If you need to bring in other images, look for the ability to import graphics formats such as PCX, TIFF, and CGM.

For text charts, look for preformatted style templates that simplify setup, and make sure there's a good selection of fonts. Many products also include an assortment of slick backgrounds, including gradients that progressively fade from one color to another.

Presentation Controls If you're a frequent presenter, global controls can save you a lot of time. To give charts a consistent look, *PowerPoint* and *CA-Cricket Presents* let you set up a master slide that serves as the background for all images. For instance, you can create a master slide that places a company logo, a color background, and an illustrative border in every slide. Both these programs also let you globally modify the colors and the fonts of discrete elements.

Because *PowerPoint* and *Presents* keep all related images in a single file, you can view miniature versions of the images in much the same way you view slides on a light table. This makes it easy to reorder slides, to quickly jump to a slide for editing, and to visualize the presentation as a whole.

Other tools to look for include outliners that help you plan presentations and automatically generate slide titles, and text editors that print out speaker notes together with a thumbnail of the related slide. It's also helpful if the program can generate audience handouts that mimic the slides or overheads. For the sake of readability, the program should also automatically convert colors to appropriate black-and-white shades and patterns.

All the packages offer on-screen slide shows, a good choice for small groups. And they're not confined to small groups anymore—affordable color LCD projectors can bring your message to larger audiences (see "For That Special Effect: Color LCD Panels" in this issue). If you're interested in PC-based shows, look for transitions such as wipes, fades, and dissolves, and for the ability to create run-time shows that don't require the graphics package.

Output The ultimate measure of any graphics package is its finished output. A package that supports a full range of printers and plotters means you won't have to change software when you buy new equipment. If you plan to send graphics to another program, make sure the package you choose supports graphics export routines for formats such as CGM, EPS, and PCX.

Support for 35mm slides and color transparencies is better than ever, and all the programs provide links to one or more slide production services that offer 24-hour turnaround. In fact, most programs let you send images via built-in communications modules. Slides were sent to each associated agency, and the quality was consistently good, but the services themselves are not rat-

Applause II's advanced color controls make it a natural for slide production. You can choose from prefab color backgrounds or blend your own colors from a palette of 5000.

ed here because users can process slides elsewhere. The packages' paper print quality was also uniformly good, with the exception of some of *DrawPerfect*'s laser printer output.

Applause II 1.0

Ashton-Tate's *Applause II* is the best choice for non-*Windows* users who crave an easy-to-use system for creating slides. Next to *PowerPoint*, it offers the best color control, and its special effects are dazzling. *Applause II*'s presentation controls are limited, but impressive charting and drawing add up to a good value.

Thanks to *Applause II*'s pulldown menus, well-organized toolbox, and thorough on-line help, novices can get going quickly. Most changes don't appear until you select the redraw function, but this is a plus if your PC is slow.

Applause II's charting features are capable and easy to tap. Data import options include *dBASE*, *Framework*, and *1-2-3*, and its data entry module is almost a minispreadsheet. You can calculate regressions, perform forecasting, and factor moving averages. You're also able to set up warm links to spreadsheet data, so updating a chart is easy.

To create a chart, you select one of six chart type icons to summon a data entry screen. Enter the numbers, click the mouse, and the chart is displayed. Word charting is just as easy—select a template icon and fill in the text.

Applause II's enhancement options deserve a standing ovation. Included in the dense kit of drawing tools is a distribute function that generates overlapping images. There's also a good library of clip art and numerous graphic import options. But color control is where *Applause II* really excels—you can choose from several color-coordinated palettes or blend your own colors.

The program lacks global controls and other presentation aids, but it shines in PC screen shows, boasting a variety of transitions and animation effects. You can send slides to MagiCorp (via Ashton-Tate) with a built-in communications module. But desktop publishers beware: Graphics export options are relatively few.

Applause II's strong charting tools, color controls, and enhancement skills are hard to resist. Although its presentation controls are weak, *Applause II* is easy to recommend for slides.

CA-Cricket Presents 1.2

Until Microsoft's *PowerPoint* arrived, Computer Associates' *CA-Cricket Presents* (formerly *Xerox Presents*) led the way in helping users organize presentations. Its presentation controls are still admirable, but *PowerPoint*'s are easier to use. Also, *Presents*' charting talents are so poor that buying the $195 *CA-Cricket Graph* is almost a must. Compared to its new *Windows*-based rivals, *Presents* is only a fair value.

Version 1.2 of *Presents* worked only under *Windows 2.x*, but a *Windows 3.0* version should be out by the time you read this. Computer Associates should also consider reorganizing *Presents*' menus in the next release—it's easy to get lost in the seemingly endless dialog

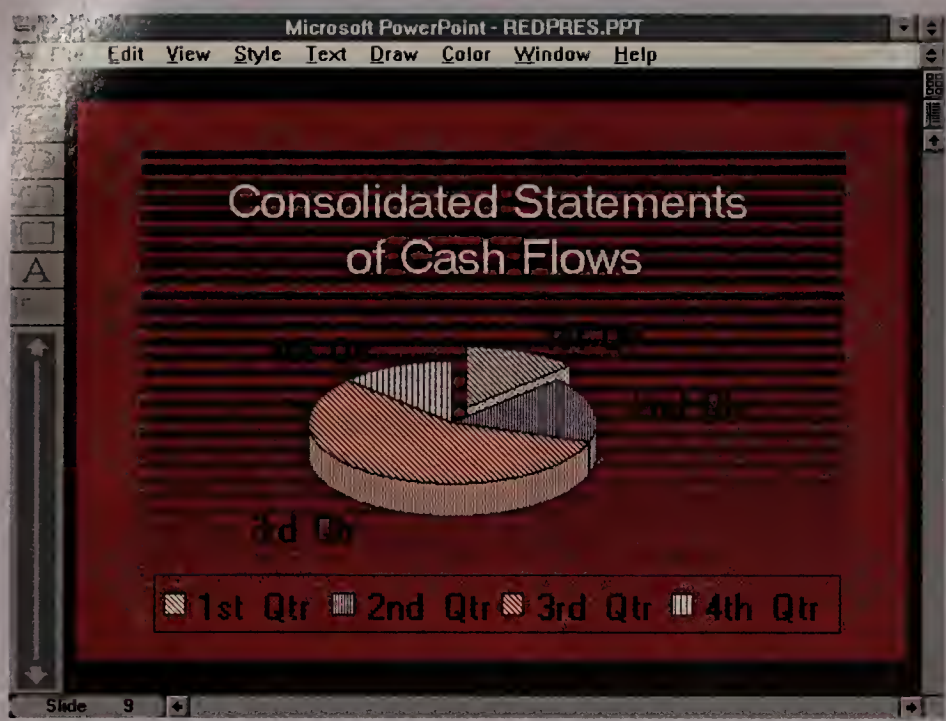
IT'S SHOW TIME: PHASE I

You've just learned that you have two days to prepare a major presentation for the board of directors. Rather than reach for the Maalox, fire up one of the latest presentation graphics programs. Here's how a typical slide-making session might fly.

First select your output format—35mm slides because these guys expect the best. Start off in the integrated outliner to rough out your talk, then generate the slide titles automatically from the outline.

You admit that you've never had much of an eye for color, so play it safe and use one of the predefined color backgrounds, with the gradient colors shading from blue to gray. Next, browse through the thumbnail gallery of clip art and select an attractive border design. Then import a TIFF file containing a scanned image of your corporate logo.

IT'S SHOW TIME: PHASE II



With the handsome backdrop created in Phase I, you're now ready to create some charts. Select a word chart template with a canned title and bulleted points, and overwrite it with your own text. You'll need to present a graph of production figures, so choose a bar graph from the chart gallery. Next, import the data from an *Excel* file and generate the graph. Add a title, and it's a wrap.

On the next slide, use the drawing tools to create a diagram that depicts your proposed production flow process. In a few hours, you have two dozen slides, including several more text charts, a pie chart, and a classy closing.

boxes. You can learn the basics fairly quickly, but mastering advanced features such as color controls takes time.

Presents' charting features are the weakest in the roundup. There are few chart types, and each line graph is limited to four sets of 20 data points—less than two years of monthly data. *1-2-3* file imports are limited to the WKS format (although the review copy wouldn't convert this format, a bug that Computer Associates is working on).

The image-enhancement tools are so-so—you can't flip or rotate objects, smooth curves, or add drop shadows. Also, the clip-art library is the smallest in the roundup, and there are no prefab backgrounds to choose from. On the plus side, text charts are easy to create with *Presents'* full-featured text editor, and there are plenty of text templates.

Presents' main focus is to help users prepare for presentations—only *PowerPoint* can do this better. You can use an outliner to plan the show, reorder the slides on an on-screen light table, and produce speaker notes and handouts. Best of all, you can set up a master slide that provides global backgrounds and elements.

The program outputs to all major printers and plotters, and its communications module links directly to Autographics. But printing is notably slow, and graphics exports are limited to CGM and HPGL formats.

CA-Cricket Presents makes sense if you've already invested in *Cricket Graph.* But *Charisma* and *PowerPoint* offer far more.

Charisma 2.0

Micrografx's *Charisma* is a *Windows*-based powerhouse that maintains the look and feel of the recently retired *Graph Plus* but offers vastly improved word charts and drawing tools. It can't match the presentation aids and ease of use of *PowerPoint,* but its charting flexibility and image control are unprecedented. Due to a few rough edges, it's limited to a Good rating, but if the problems are fixed in an upcoming release, it should be an excellent value for experienced graphics users who need top-notch enhancement tools.

Charisma crashed several times during testing. Micrografx confirmed the problem was caused by the location of *Windows 3.0* temporary application files. After we followed the temp file advice in the *Windows* manual, the problem disappeared. However, there were other signs that the program was rushed out the door prematurely: Handles on an object sometimes fail to appear, and the HPGL filter couldn't export some graphics in *Windows'* 386-enhanced mode. Micrografx plans to take care of all these problems in a free maintenance upgrade.

Other problems stemmed from omissions rather than bugs. For example, there's a serious flaw with the *1-2-3* import: Pure numbers are imported, but not the results of formulas. Moreover, *Charisma* can work with only one file at a time—you can gang up to 12 images per file, but to cut and paste between files, you have to cut an image to the Clipboard, load a new file, and then paste the image in.

Despite these snags, *Charisma* is generally a friendly place to work. Compatible with both *Windows 2.*x and *Windows 3.0, Charisma* offers an intu-

itive interface that sports pulldown menus, shortcut keys, and a customizable toolbox.

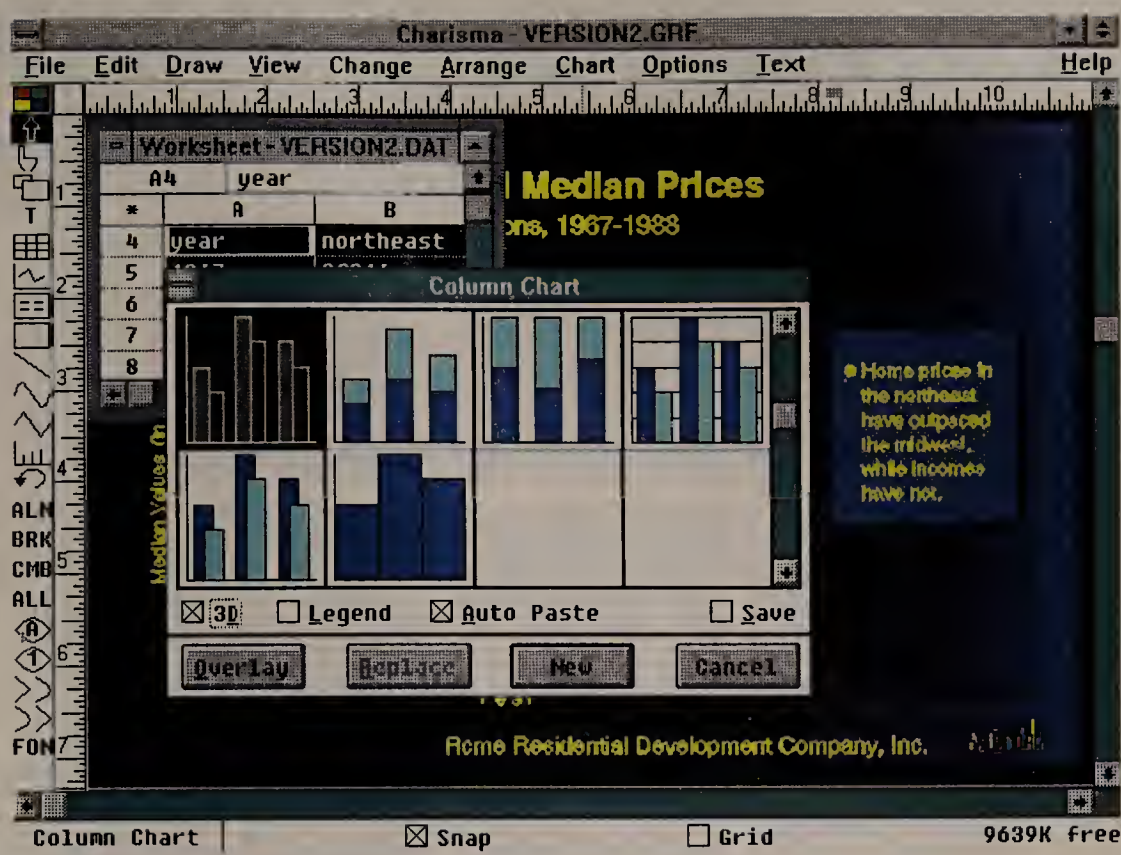
Charting features are first-rate—you select chart types by clicking on thumbnails in a gallery. There's a good assortment of text templates, and it's easy to set up hanging indents and other effects. Font support is extensive: *Charisma* comes with 35 Bitstream and 6 Nimbus Q outline typefaces in 13 families. Aside from the *1-2-3* glitch, import options are thorough. You can bring in charts from *Harvard Graphics*, and use a DDE macro to automate data transfer from *Excel*.

Charisma's editing skills are so finely tuned that it almost doubles as a draw package. Using tools borrowed from Micrografx's *Designer*, you can draw Bézier curves, reshape objects, and even convert text to curves. *Charisma* offers the most clip art in the roundup, and it's easy to find what you want—you can select 2200 images from menus of thumbnail sketches. *Charisma* is the only package reviewed that lets you assign color gradients to objects in addition to backgrounds.

Like most of its rivals, *Charisma* lacks global controls, so to change all your text slides from 18 points to 24 points, for example, you'd have to go into each slide separately and make the change. It also lacks modules for speaker notes or handouts, but it has a good screen-show module, replete with special effects.

Charisma's Graphics import and export options are the best of the group, and output is superb, with special PostScript and plotter drivers complementing a broad array of film recorders. Built-in communications capabilities link you up to both MagiCorp and Slidemasters.

While it lacks the presentation controls of *PowerPoint*, *Charisma* provides more power for experienced graphics users. Once Micrografx cleans up the bugs, *Charisma* will eclipse *Freelance Plus* as the pick of the power user.



Charisma lets you choose from a wealth of chart types via a thumbnail gallery. You can enhance the charts with drawing tools that approach those of advanced illustration packages.

DrawPerfect 1.1

WordPerfect's foray into graphics offers charting features that approach those of *Charisma* and a respectable set of drawing tools. If your goal is slides, there are better (and easier) alternatives, but if you want to swirl graphics into *WordPerfect* documents, *DrawPerfect* is a reasonable buy.

Ease of use is not *DrawPerfect*'s strong suit. Key features, such as dual-color background controls, are hidden away in odd places, and the mishmash of pulldown menus, function keys, icons, and pick lists can be confusing. *DrawPerfect* is mostly mouse-driven, but in a few areas mouse support evaporates. Selecting files and calling help screens may seem clumsy to non-*WordPerfect* users.

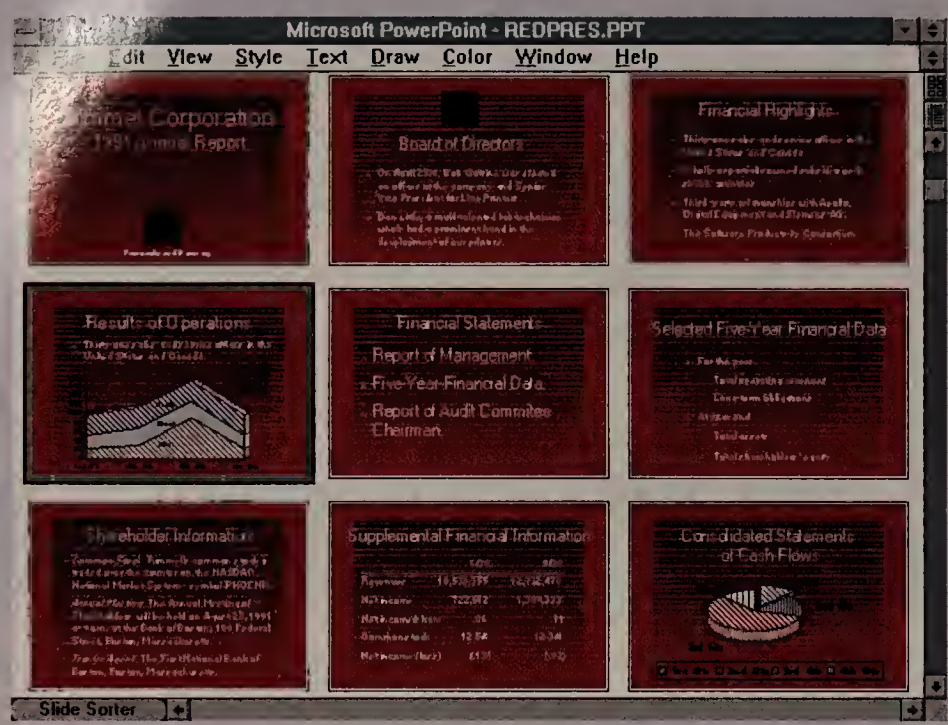
DrawPerfect's charting options are tops. To generate a graph, you pull down the chart menu and select the desired type. A graph is displayed using sample data, and you move to other screens to substitute your own data and edit the chart. (Import options include *Excel*, *1-2-3*, and *PlanPerfect* files.) You can enhance *DrawPerfect*'s flexible word charts with fonts from a whopping 21 typeface families, and you can choose from a nice selection of text templates.

Despite its name, *DrawPerfect* is not a true draw package. In fact, *Applause II*, *Charisma*, *Freelance Plus*, and *Harvard Graphics* all offer stronger enhancement tools. *DrawPerfect* lacks drop shadows and a general undo. Color selection is awkward, with no prefab color backgrounds or color schemes. On the plus side, you get a strong clip-art library, a superb curve tool, plenty of graphics import routines, and a screen-capture utility. It's also nice to be able to work with two separate drawing windows.

Don't expect help in organizing your presentation. You'll find no global controls or presentation aids, but *DrawPerfect* is great for PC slide shows.

Output wins mixed notices. Since the program lacks Bitstream fonts, some of its laser printer text is marred by angular curves, and due to the absence of prefab color schemes, slide output is often disappointing on the first try. There's no built-in communications, but you can process slides at any service

IT'S SHOW TIME: PHASE III



The slides are finally done, and it's time to run them past your boss. After a quick spelling check, select the screen-show option, tossing in a few fancy transitions. She's impressed but suggests you cut a few slides and reorder several others. You switch to the program's light table mode showing miniature versions of the slides and use a mouse to rearrange the order.

To avoid any slipups, print out some notes to speak from and, while you're at it, some handouts of each slide. Finally, use the integrated communications software to dial up a slide bureau and automatically upload your file. Request rush service, so you'll have your slides the next day.

That was easier than you thought, you tell yourself. But the hard part is still ahead.— *J. W.*

that accepts SCODL or CGM files. Not surprisingly, exporting graphs into *WordPerfect* is a breeze—you simply select *WordPerfect* as an output option.

DrawPerfect is the answer only if you need to integrate images into *WordPerfect*. Otherwise, look elsewhere.

Freelance Plus 3.01

Several rivals now surpass this Best Buy of 1989, but Lotus's *Freelance Plus 3.01* remains a sensible purchase. Its command-line interface seems somewhat clunky compared to some of the new *Windows* whiz kids, but its outstanding set of drawing tools, clip art, and *1-2-3* links keep *Freelance Plus* in the top echelon. If *Windows* isn't an option and your work requires extensive enhancements, *Freelance* is the answer.

Freelance's *1-2-3*–like menus are logically organized, and you can use a mouse for most jobs. However, instead of using a chart gallery, you set up charts in a rather unwieldy multipage form. Still, charting tools are capable, and integration with *1-2-3 2.x* and *3* is tops. It's easy to set up and update warm links—when you open a chart, *Freelance* searches the *1-2-3* worksheet and updates the data. Unfortunately, if you update a chart once it's part of a drawing, you must reimport your chart to the drawing window.

The superb image-editing tools include curve smoothing and numerous geometric shapes. If you need to modify a figure from the enormous clip-art library, you'll appreciate the versatile object-selection options, including the ability to select all similar objects. Like *DrawPerfect*, *Freelance* can display two drawing screens, making it easy to cut and paste between two charts or slides.

Freelance Plus has its weaknesses, though. Color selection is limited to 12 colors per slide, and there are no built-in gradient backgrounds. Also, it lacks text templates and has few graphics import formats.

Presentation controls don't come close to matching *PowerPoint*'s or *Presents*', but at least you have some control over global editing. The Portfolio module lets you organize chart files and print them en masse, and you can globally change colors and fonts. But there's no master slide feature or visual image sorting. You do get a superb PC screen-show function, including a run-time feature.

Output options are respectable, and print quality is also good. You can send your slides to several major services, but there's no built-in communications.

If your data comes from *1-2-3*, and if your PC isn't ready for *Windows*, *Freelance Plus* remains a good buy. But unless editing features are paramount, *Harvard Graphics* is a slightly better choice.

Harvard Graphics 2.3

Software Publishing's *Harvard Graphics* has long dominated the graphics marketplace and should maintain its popularity with the latest release. Version 2.3 adds a chart gallery and a direct link to *Draw Partner*, a draw program now tossed in for free. Presentation controls are only average, and integration

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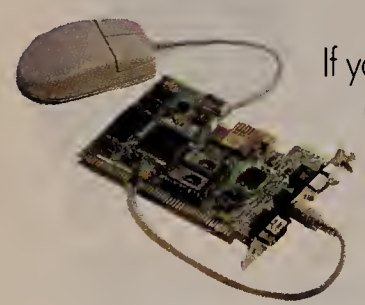

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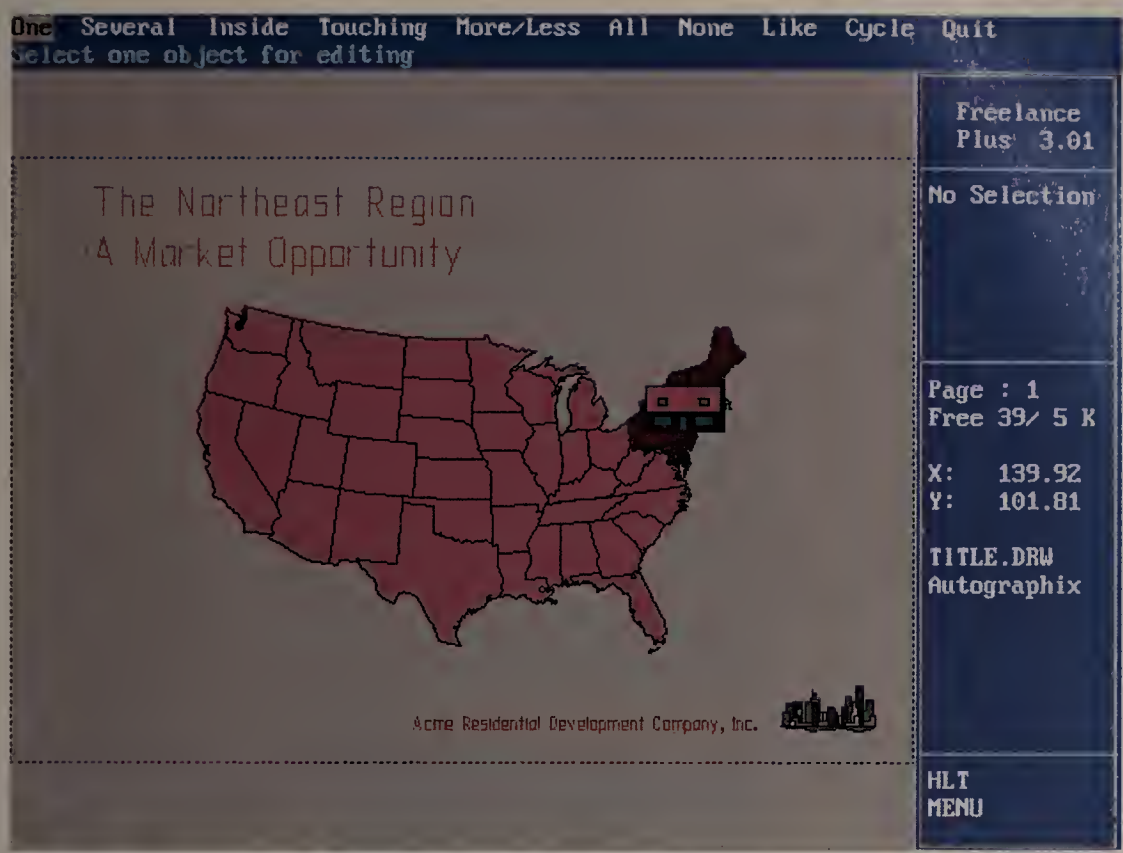


Freelance Plus's interface may appear a bit outdated, but it still offers some of the best enhancement features around, including superb object manipulation tools.

between charting and drawing needs tightening, but you still can't beat the combination of top features and an easy interface. *Harvard* is a better deal than ever.

Harvard Graphics' smooth interface uses a combination of menus and function keys. Our only complaint: It's annoying to constantly switch between the text-based graph options and the graphic view window.

Harvard's charting skills are outstanding. The picture gallery lets you choose from 65 thumbnails of predefined chart types, including text, mixed graphs, organizational charts, and true 3-D bar charts. You get plenty of data import routines, and you can set up warm links with all supported spreadsheets.

To enhance an image, you can either use the built-in drawing tools or access *Draw Partner*—a powerful program that includes unusual effects such as circular text and perspective control. The bad news is that *Draw Partner* is somewhat tedious to use, and it skimps on graphics import routines. Worse, due to memory limitations, you may have to save and clear your work in order to exit *Draw Partner* and return to *Harvard* when working with large files.

Harvard lacks global editing or visual image sorting, but you can generate speaker notes. There's no handout feature, but the ability to automatically (and accurately) convert color into black-and-white output partially compensates for this lack. On-screen slide shows are the best in the roundup, boasting animation sequences and runtime shows (at extra cost). You also get a hypertext function that lets users press keys to control the selection of slides, a handy interactive feature for floor demos. Output options are also good—you can hook up to Autographics via a communications module.

Harvard Graphics continues to improve with age. It's your best all-around choice if you don't use *Windows*, and it's particularly apt for PC slide shows.

Harvard Graphics' chart gallery lets you choose chart types easily by selecting thumbnail designs with the mouse. You can toggle through alternative colors and see the effect immediately.

Microsoft PowerPoint for Windows 2.0

Rather than pour every possible feature into *PowerPoint for Windows*, Microsoft added just those functions that busy business people need. As a result, it's the easiest package in the roundup, yet it's capable of producing awesome slide and color-transparency output. Like *CA-Cricket Presents*, *PowerPoint* includes presentation controls that help you prepare the

EXECUTIVE SUMMARY

Microsoft PowerPoint for Windows Wins With Quick, Easy, Professional Presentations

Some of the latest presentation graphics entries help orchestrate presentations from start to finish.

Presentation graphics software lets you create, enhance, and organize text charts and graphs for output to printers, plotters, slides, and other applications.

Microsoft PowerPoint for Windows wins the Best Buy with its accessible interface, presentation-wide controls, and stunning color support. **Charisma** is the choice for experienced users who need top editing tools. If Windows is not an option, your choice may depend on whether you value superior charting (**Harvard Graphics**), enhancements (**Freelance Plus**), or color controls (**Applause II**).

	Applause II 1.0	CA-Cricket Presents 1.2	Charisma 2.0	DrawPerfect 1.1	Freelance Plus 3.01	Harvard Graphics 2.3	Microsoft PowerPoint for Windows 2.0	35mm Express 4.3
Charting	Good	Poor	Good	Good	Good	Excellent	Good	Poor
Enhancement	Excellent	Fair	Excellent	Good	Good	Good	Fair	Fair
Presentation controls	Fair	Excellent	Fair	Fair	Good	Fair	Excellent	Poor
Output	Good	Good	Excellent	Fair	Good	Good	Good	Good
Ease of use	Good	Fair	Good	Fair	Fair	Good	Excellent	Fair
Overall value	Good	Fair	Good	Fair	Good	Good	Excellent	Poor
							BEST BUY	
Reader service no.	610	611	612	613	614	615	616	617

How we rate presentation graphics packages
We rate presentation graphics packages based on information in the Features Evaluation table, combined with our hands-on evaluation of user benefits, quality, and ease of use.

Charting refers to importing data and generating graphs and text charts. For an Excellent rating, a package must import complete data from popular spreadsheets, and the charts should maintain links with the data, even when it's being modified. The program should offer a variety of chart types, including mixed line/bar, scatterplots, text, and dual *y*-axis graphs.

Enhancement refers to the process of modifying images with painting and drawing tools, as well as changing colors, hatchings, line widths, and fonts. To achieve an Excellent rating, a program must offer a good mix of drawing tools and the ability to divide, combine, rotate, and align objects. It should also offer plenty of high-quality clip art, import popular graphics formats, and provide extensive color controls, including gradient color backgrounds. Other pluses: a good mix of supplied backgrounds, color combinations, text chart templates, and fonts.

Presentation controls help you plan, organize, and coordinate a presentation. To earn an Excellent, a package must offer global controls over backgrounds and other common elements. It should let you sort slides on screen, provide an outliner for planning slide shows, and generate handouts and speaker notes. Its on-screen slide-show function should include a number of transitions.

Output refers to devices supported, output quality, links to slide services, and graphics file exports. An Excellent rating means a program supports popular printers, plotters, and slide cameras. The package should export graphics in EPS, TIFF, and other popular formats. It should provide access to a full-service slide production agency via a built-in communications module. Finally, printed and slide output should be of high quality.

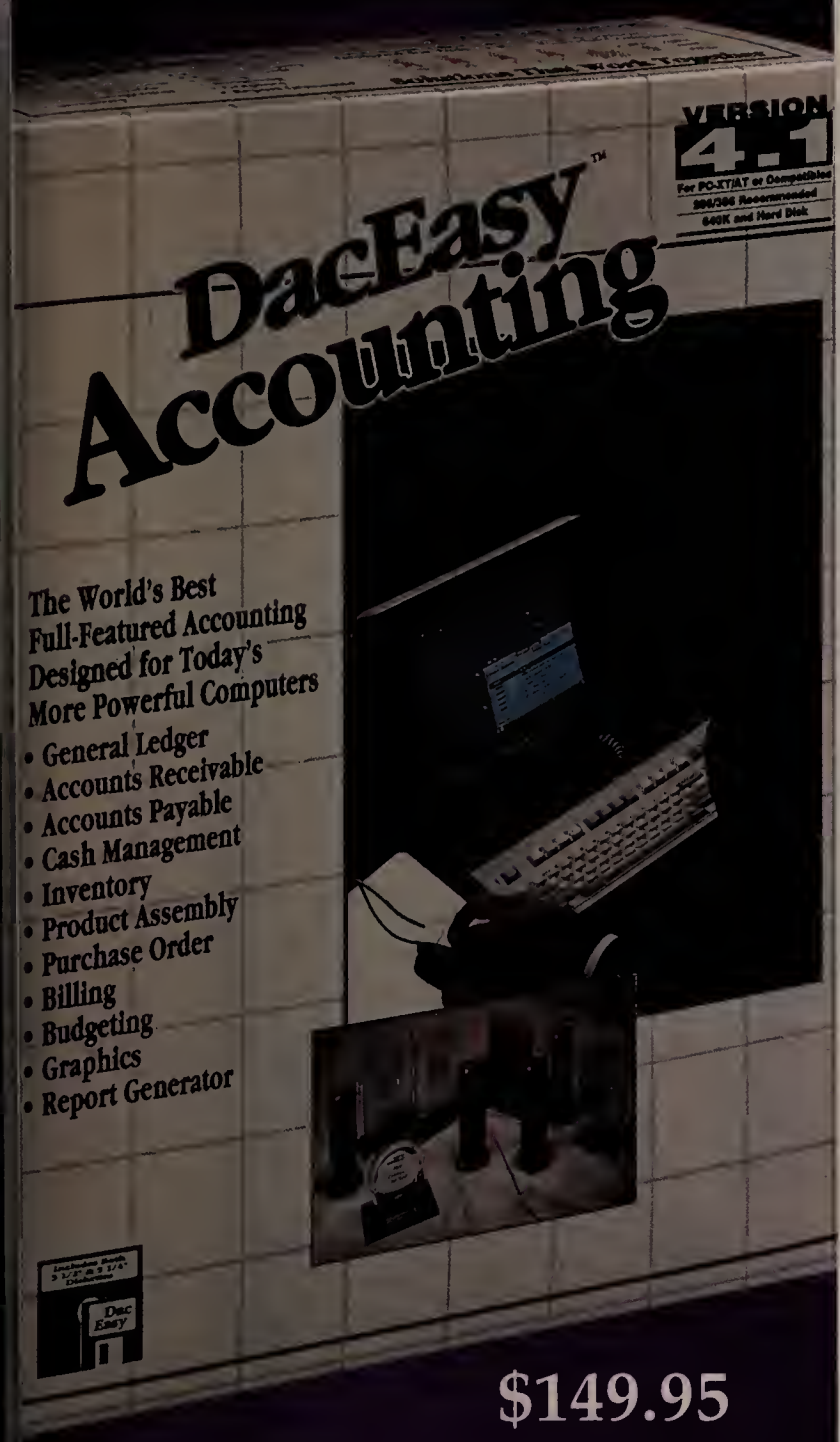
Ease of use takes all the above criteria into account. To earn an Excellent rating, a program must offer easy installation, well-organized and instructive manuals, good help, and an intuitive interface.

Overall value takes into account all the above criteria with an eye toward technical support; extra weight is given to presentation controls.

show from start to finish, and it's easy to reorder slides and make global changes. Drawing tools are fairly limited, but color and text features are astounding. Graphics professionals may prefer *Charisma*, but most users will find *PowerPoint* their Best Buy.

Capitalizing on the user-friendly power of *Windows 3.0*, *PowerPoint* ranks number one in ease of use. To create a graph, you select one from a gallery and open an *Excel*-like worksheet filled with sample data. You can easily fill in your own numbers or import data from *Excel* or *1-2-3*.

PowerPoint lacks DDE links to other *Windows* programs, but it includes a new version of DDE called embedded document DDE. Rather than reach out to other programs, embedded DDE works internally, enabling *PowerPoint* to communicate and update data between its graph and draw modules almost seamlessly. This helps provide *PowerPoint* with the smoothest interface in the roundup, but it doesn't make up for the lack of warm links to *Excel*.



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LOGITECH

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Tools That Power The Desktop.

The graph selection is fairly limited, but text charting is exceptional. To insert text you simply draw a text window with the mouse, select a prefab text template, and type over the words. You can easily resize or move the window and call up an icon ruler bar similar to *Word for Windows'* to aid in setting tabs and hanging indents.

You'll find plenty of good clip art and extensive graphic file conversions, but if you plan to spend a lot of time refining images, look elsewhere. A modest set of drawing tools lets you add circles, rectangles, lines, and shadows, but there are no tools for curves or freehand drawing. Worse, *PowerPoint* won't let you break apart the components of a clip-art image.

Color control is extraordinary and easily accessible. The program provides a full range of gradient backgrounds and color-coordinated graph options, or you can mix your own color from a generous palette.

PowerPoint excels at presentation control and assembly. As with *Presents*, all slides for a presentation are conveniently stored in a single file with a master slide that contains elements common to all. You can view miniature versions of all the slides in a presentation—useful for rearranging slides and for jumping quickly to a particular image.

PowerPoint makes it easy to whip up a sleek presentation—and that's what business users want.

It's also easy to globally change fonts and colors. You can generate speaker notes and handouts, but there's no automatic conversion of color to black and white, so usually you'll have to convert solid colors to hatch patterns manually.

On-screen slide shows are rudimentary, with no special transitions. However, you can jump to a specific screen by pressing a key. Output support is solid and the quality is excellent. A communications module lets you send files to Genigraphics.

Despite its weak drawing tools, *PowerPoint* is clearly the Best Buy. It makes it easy to quickly whip up a sleek presentation—and that's just what business users want.

35mm Express 4.3

True to its name, *35mm Express* specializes in slide creation. While it offers good color control and attractive default formats and styles, its feature set and interface pale in comparison to those of the newer players.

The outdated file management system is plagued by clunky icons and fixed-capacity folders and cabinets. The menus are poorly organized, and it's hard to deduce how to add clip art.

In order to import spreadsheet data, you must have already generated a graph and stored its settings in a WK1 file. Chart selection is limited, lacking

THE GRAPHICAL QUATTRO PRO: PRESENTATIONS WITH A SPREADSHEET?

Now that the graphics talents of spreadsheet packages are so hot, why would you bother with a separate graphics package? It depends on where you draw the line.

Both *1-2-3* release 3 and *Excel* provide a good assortment of graphs, and *Excel's* ability to insert free-floating text and arrows in a graph gives it the edge. Both are adequate for simple presentations, and they usually suffice if you merely want to illustrate documents with simple charts. Yet neither program can generate text charts, and both lack drawing tools, color controls, and 35mm slide support.

Borland's *Quattro Pro*, however, is a step ahead of its rivals in the presentation game. You can enhance charts with lines, text, boxes, circles, curves, and arrows, and you can even get special effects like drop shadows. *Quattro* ships with loads of clip art and a variety of Bitstream fonts for text charts.

With *Quattro*, you can easily select a group of objects and move or resize them en masse. Objects can be layered and even linked to a data point, so, for example, an arrow would always point to a break-even mark on a chart, even as the values change.

But *Quattro* has its drawbacks. Since graphs are redrawn each time you make a change, large-scale enhancements can be frustrating. Also, it lacks global styles and other presentation controls.

You may not want to rely on *Quattro Pro* for the big pitch to the clients. However, it may be all you need for those weekly meetings with your colleagues where you try to explain, yet again, just how right you really are. —*J. W.*

WHERE TO BUY

Quattro Pro
Borland Int'l
1800 Green Hills Rd.
P.O. Box 660001
Scotts Valley, CA 95066
408/438-8400
LIST PRICE: $495
Reader service no. 618

scatterplots, high/low charts, or bar/line combinations. Also, you're limited to solid lines (sans markers), so you must rely on color and line weight to differentiate lines.

The clumsy interface mars a fairly respectable set of drawing tools. Pull-down menus often obscure the drawing screen, and changes don't take effect until you exit the menu. There's no grid or ruler to help place objects, and font support is weak. Worse, you're limited to a scant 125 clip-art images, and only two graphics formats can be imported.

For a program aimed at slide shows, presentation controls are sparse. You can't create gradient backgrounds on screen, sort images, or generate hand-outs. For on-screen slide shows, you're stuck with a single transition effect.

35mm Express outputs to a variety of devices, including slide cameras, and a communications module zips slides to MagiCorp. Nevertheless, *35mm Express* is not recommended.

A Bias Toward Windows

Maybe it's a coincidence, but the two best graphics programs in the roundup both run under *Windows 3.0.* If you're no Michelangelo, but you're called upon to conjure up presentations, *PowerPoint* is the Best Buy. Its accessible interface, global controls, and vast selection of predefined formats will save you plenty of time. *Charisma* comes in second with its top-notch editing skills, which power users will appreciate.

For those who aren't ready to jump into *Windows,* there's still good news. *Harvard Graphics* wins out if you want charting flexibility and hot PC slide shows. *Freelance Plus* offers superior editing tools, and *Applause II* gets the nod for total color control. Regardless of your choice, with software like this there's no longer any excuse for a boring presentation.

Mike Smith-Heimer is a freelance writer, city planner, and financial analyst who lives in Berkeley, California. John Walkenbach is a contributing editor for PC World.

WHERE TO BUY

Applause II 1.0
Ashton-Tate
20101 Hamilton Ave.
Torrance, CA
90509-9972
800/437-4329,
213/329-8000
LIST PRICE: $495
REQUIREMENTS:
512K, hard disk,
graphics display, DOS
2.0 or later version
TECHNICAL SUPPORT:
unlimited, toll number,
M–F 6–4:30
OTHER SUPPORT: toll-free voice response system; Assist enhanced support $150 to $595 per year; CompuServe forum (GO ATAPPS) and Genie BBS, newsletters, training
Reader service no. 610

CA-Cricket Presents 1.2
Computer Associates Int'l, Inc.
1240 McKay Dr.
San Jose, CA 95131
800/531-5236,
408/432-1727
LIST PRICE: $495
REQUIREMENTS:
640K, hard disk,
graphics display,
Windows 2.1 (run-time included), DOS 3.1 or later version
TECHNICAL SUPPORT:
toll number, M–F 6–5,
free for six months,
then $2/minute ($20 minimum per call);
unlimited toll-free support and free upgrades $125 per year
OTHER SUPPORT: BBS
Reader service no. 611

Charisma 2.0
Micrografx, Inc.
1303 E. Arapaho Rd.
Richardson, TX 75081
800/733-3729,
214/234-2410 (fax)
LIST PRICE: $495
REQUIREMENTS: 1MB,
hard disk, graphics
display, mouse,
Windows 2.11 or 3.0
TECHNICAL SUPPORT:
unlimited, toll-free
number, M–F 7–6
OTHER SUPPORT:
extended support $150 per year includes free upgrades; newsletter; CompuServe forum (GO WINAPA)
Reader service no. 612

DrawPerfect 1.1
WordPerfect Corp.
1555 N. Technology Way
Orem, UT 84057
800/321-4566
LIST PRICE: $495
REQUIREMENTS:
384K, two high-density floppies,
graphics display, DOS
2.0 or later version
TECHNICAL SUPPORT:
unlimited, toll-free
number, M–F 7–6
OTHER SUPPORT:
CompuServe forum
(GO WPSGB)
Reader service no. 613

Freelance Plus 3.01
Lotus Development Corp.
55 Cambridge Pkwy.
Cambridge, MA
02142
617/577-8500
LIST PRICE: $495;
server edition $695
plus $395 for each node
REQUIREMENTS:
640K, hard disk, DOS
2.1 or later version
TECHNICAL SUPPORT:
free for six months;
then free first minute,
$2 each additional
minute, toll number,
T–Th 8:30–8, M and F
9:30–8
OTHER SUPPORT:
extended support
$49 per year (includes toll-free number), 90-day money-back guarantee, newsletter,
CompuServe forum
(GO LOTUSB)
Reader service no. 614

Harvard Graphics 2.3
Software Publishing Corp.
1901 Landings Dr.
Mountain View, CA
94039
415/962-8910
LIST PRICE: $495
REQUIREMENTS: 512K
(640K recommended),
hard disk, graphics
display, DOS 2.1 or
later version
TECHNICAL SUPPORT:
unlimited, toll number,
M–F 7–4
OTHER SUPPORT:
CompuServe forum
(GO SPCFORUM)
Reader service no. 615

Microsoft PowerPoint for Windows 2.0
Microsoft Corp.
One Microsoft Way
Redmond, WA
98052-6399
800/426-9400,
206/882-8080
LIST PRICE: $495
REQUIREMENTS: 1MB
(2MB recommended),
mouse, hard disk, EGA
or VGA display,
Windows 3.0
TECHNICAL SUPPORT:
unlimited, toll number,
M–F 6–9
OTHER SUPPORT :
GEnie and
CompuServe forums
(GO MSAPP)
Reader service no. 616

35mm Express 4.3
Business and Professional Software, Inc.
143 Binney St.
Cambridge, MA
02142
617/491-3377,
800/342-5277 (fax)
LIST PRICE: $495
REQUIREMENTS:
256K (512K
recommended), two
disk drives, graphics
display, DOS 2.0 or
later version
TECHNICAL SUPPORT:
unlimited, toll-free
number, M–F 9–5
OTHER SUPPORT:
extended support (free upgrades) $250 per year; disk tutorial $5; newsletter, user group
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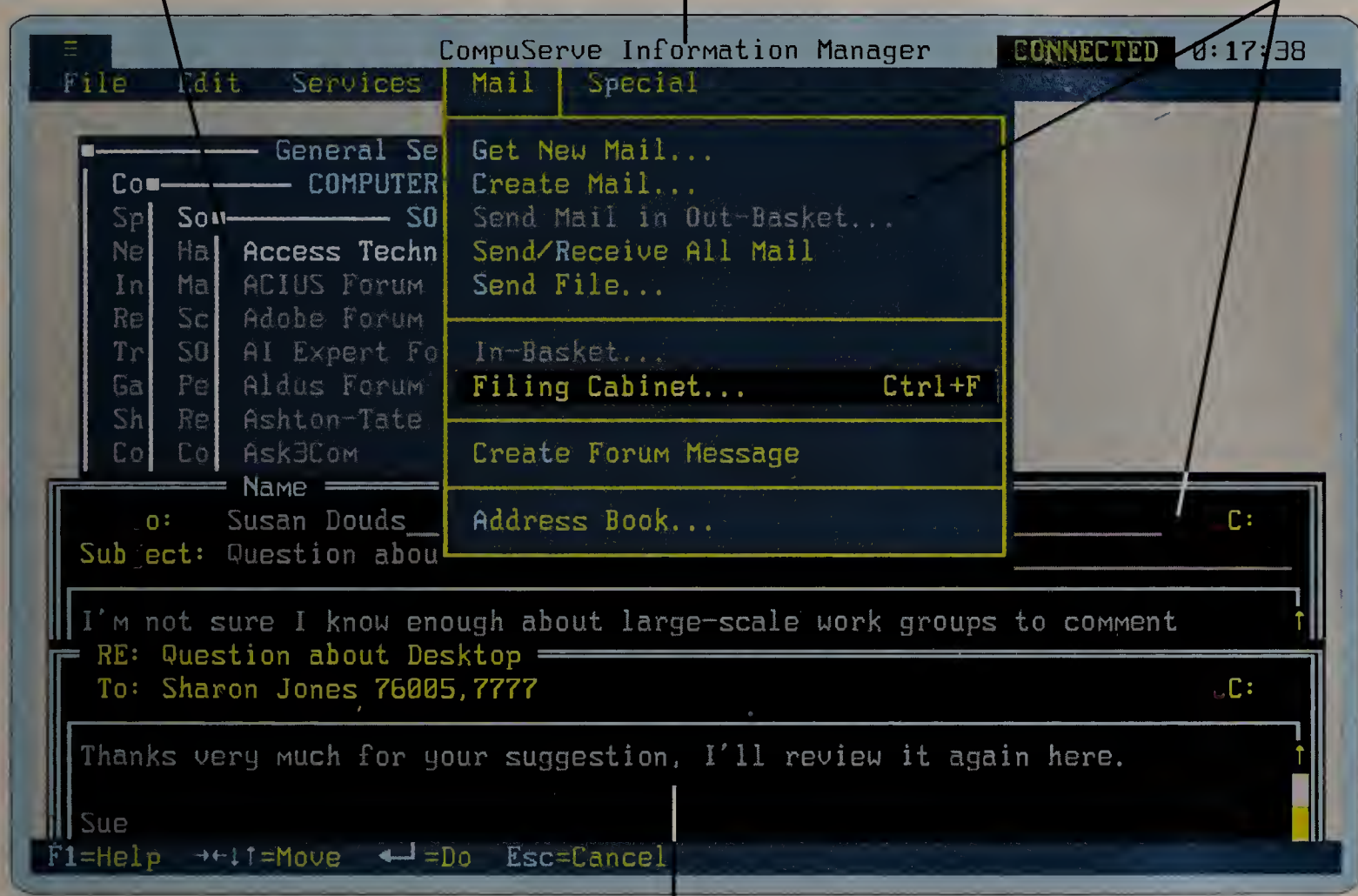

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For That Special Effect: Color LCD Panels

If you want to take advantage of the special effects that the latest presentation graphics programs offer, then LCD panel systems may be the best way to move images from PC to screen.

Steve Bass

With graphics software, you can create spectacular and informative color images. But how do you project these pictures onto a big screen—inexpensively and conveniently—to be seen by a roomful of people? Until recently, if an immobile video projector was impractical or too expensive, you were limited to transparencies and slides.

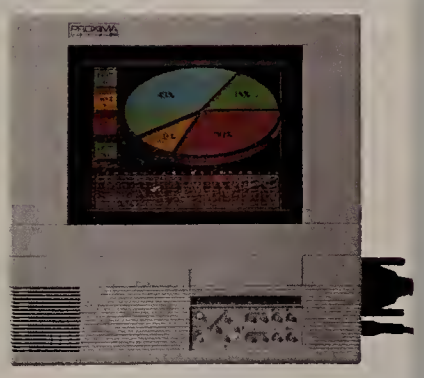
Enter a new option: color LCD projection panels. Flat, square, and resembling an oversized Etch A Sketch, an LCD projection panel sits on top of a conventional overhead projector and hooks up to your PC's video port just as a monitor does. The video image is formed between two pieces of glass in the panel. Light from the projector passes through the panel, casting the image onto a wall or large screen.

Until this year, LCD projection panels were monochrome and used mostly for PC training classes. (The exceptions were so-called simulated color panels, which used variations of blue/yellow, yellow/magenta, and blue/white, resulting in such stunning images as green roses against a magenta sky.) The advent of true color makes LCD panels a viable medium for business presentations as well as for the classroom.

Color LCD panels can't offer the sharp, bright images that good slides can, but they enable you to use special effects that slides can't handle, such as wipes and dissolves. Animation is possible too, but the slow redraw speed of an LCD panel—it can take a quarter to a half a second to form an image—can blur movement on screen. This sluggishness is annoying especially in presentations involving movement. Another problem: The image quality of some panels deteriorates over the course of a long presentation.

A color LCD panel costs in the neighborhood of $5000, but once you've bought the panel, that's it. Slides, on the other hand, are an ongoing expense, at a few dollars to $100 per picture. And there's no turnaround time with panels—as soon as you're satisfied with an image, you can use it.

Today's color LCD panels need to be hooked up to a computer during presentations. So when you take your show on the road, you'll have to either lug a laptop with you or hope there's an available PC at your destination. (Liteshow II from In Focus, due out late this year, will include a floppy-based playback unit for computerless demonstrations.) But if you want to avoid the expense and time delay of slides *and* get snazzy video effects in the bargain, the umbilical connection to a PC is a reasonable price to pay.



When used with an overhead projector (center), color LCD projection panels like the In Focus 480CX (top) and the Proxima Data Display VersaColor (bottom) give you a full-color, portable presentation medium with more intimacy than slides.

Buying Projections

At press time, only two color LCD panels, the Proxima Data Display VersaColor and the In Focus 480CX PC Viewer, were available. But by the time you read this, Telex's MagnaByte 6000 and the Nview RGB should also be out.

When buying a color LCD panel, consider image quality above all else. Durability, ease of use, and portability are next in importance. If possible, rent a unit and try it in the environment you'll be using it in.

Image Quality A bright, sharp im-

LCD

(continued)

age with accurate, pleasing colors is your first priority. When checking for brightness and clarity, don't look just at the center of the screen—a panel's image is often at its dimmest and fuzziest on the edges. It's also possible for objects to appear misshapen in some areas of the screen but not in others. Both the Proxima and the In Focus were admirably free of these problems, projecting business graphs, charts, and text with little or no distortion or image decay. Surprisingly, they reproduced scanned color photographs about as well as a VGA monitor.

Look for bright, vivid colors that match what the monitor shows. The advertised number of colors may not mean much in the real world: Although the Proxima offers 512 colors and the In Focus only 64, the differences on screen are barely visible.

Image Stability An image that looks good when you turn on the projector isn't enough; heat from an overhead projector can cause an image to deteriorate. Set up an ongoing presentation and observe how long it takes before the image begins to fade or wash out. Both the In Focus and the Proxima worked for over an hour with no ill effects.

Getting It to Work Like CRT monitors, LCD projection panels have controls for changing contrast, video modes, and other variables, as well as color-level controls not typically found in computer monitors. Unlike CRTs, LCD panels usually have buttons rather than dials. Because you'll have to make adjustments while the panel is sitting atop an overhead projector, look for controls that are well labeled and easy to access. If adjustments can be made with a wireless remote-control unit—like the one that comes with the Proxima—so much the better.

An LCD panel should accept both EGA and VGA output, especially if you plan to take the panel on the road and hook it up to a strange PC. Both the Proxima and the In Focus can handle either of these standards, and both ship with EGA and VGA cables.

Although not as sharp as a slide, the projected image from a color projection panel contains acceptable colors—as long as animation is kept simple.

These cables, however, are only 6 feet long. If you'll be running presentations from the keyboard, a 6-foot cable may put you between your audience and the screen. Unfortunately, longer cables aren't available for every LCD panel; video signals deteriorate over distance and panels have to be designed to account for that.

Cables that allow you to split the signal, so that it goes to both the panel and a monitor, let you keep your eye on the presentation without turning your back to the crowd. The Proxima comes with a "Y" adapter that splits the signal, and for $199.95 In Focus offers an adapter box that lets you use two 6-foot cables.

A remote-control unit can make the cable-length question moot. The Proxima's remote can be used for presentations created in any application, thanks to a bundled utility that assigns keystrokes to the buttons on the remote.

Portability LCD panels are pretty delicate. If you'll be traveling with yours, you'll need a good carrying case, preferably a form-fitted, hard-shell one. Unfortunately, the optional carrying cases sold by Computer Accessories and In Focus are soft sided, so you may want to consider having a custom case built. If you'll be flying with your panel, make sure the case fits under an airplane seat.

A heavy, bulky power supply is annoying on the road. Most projection panels have freestanding power supplies with transformers that plug directly into an AC power source, covering more than one AC receptacle. The Proxima's power supply is substantially heavier than the In Focus's, but its transformer and AC plug are separate, which makes it more convenient.

Taking a show on the road has always meant more hassles and fewer props. Before the advent of color LCD panels, trainers took monochrome panels, and people doing business presentations made do with slides and transparencies. Now there's another option.

Steve Bass is president of PCG Seminars, which conducts computer-based training seminars for mental health professionals. He is also president of the Pasadena IBM Users Group.

WHERE TO BUY

In Focus 480CX PC Viewer
In Focus Systems, Inc.
7770 S.W. Mohawk St.
Tualatin, OR 97062
800/327-7231 (outside Oregon only),
503/692-4968,
503/692-4476 (fax)
LIST PRICE: $5495
ACCESSORIES: carrying case $129.95, A40C adapter box $199.95
WARRANTY: one year parts and labor
TECHNICAL SUPPORT: unlimited, toll-free number, M–F 7–5
OTHER SUPPORT: none
Reader service no. 605

Proxima Data Display VersaColor
Proxima by Computer Accessories Corp.
6610 Nancy Ridge Dr.
San Diego, CA 92121
800/582-2580,
800/582-0852 California,
619/457-9647 (fax)
LIST PRICE: $4799
ACCESSORIES: carrying case $79.95
WARRANTY: one year parts and labor
TECHNICAL SUPPORT: unlimited, toll-free number, M–F 7–6
OTHER SUPPORT: none
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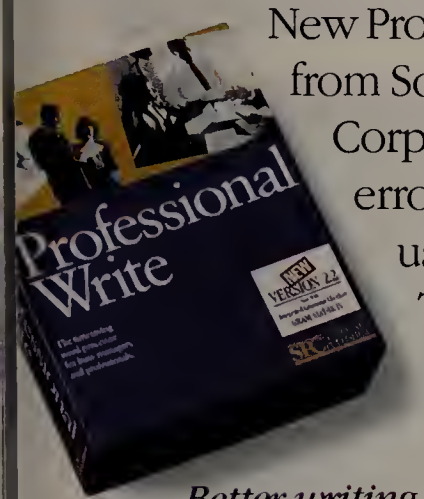

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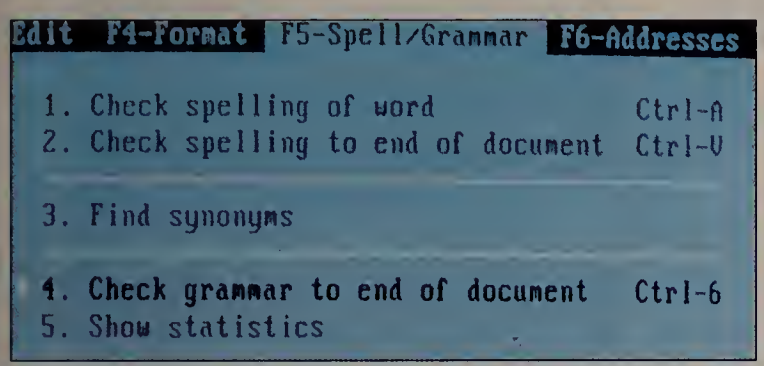

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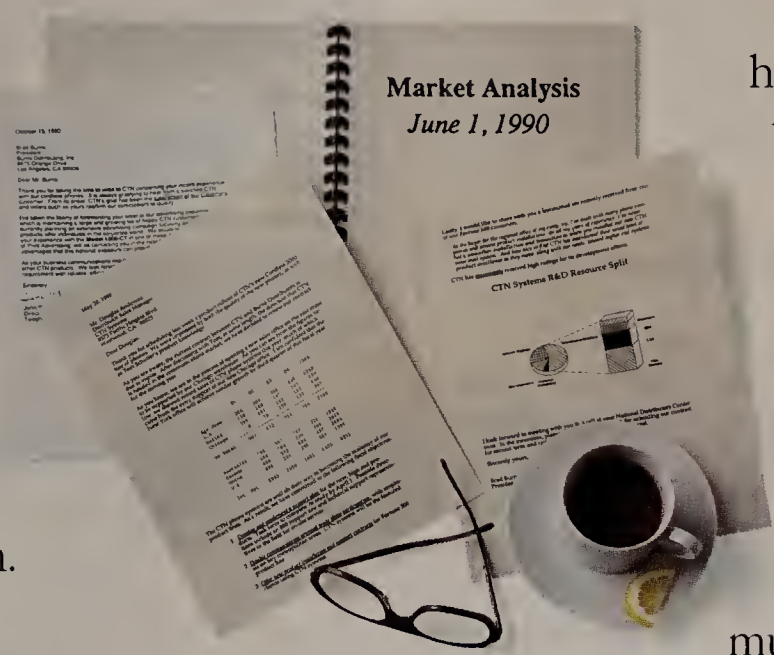

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CADKEY 3.12	$ 3,195.00	Solids $995.00 IGES translator $1,995.00
DataCAD with DC Modeler	$ 3,990.00	DataCAD Velocity $2,000.00
DesignCAD 3D ver. 2.0	**$ 399.00**	**NO expensive options! IGES Free, Shading Free**
MaxxiCAD 1.02	$ 1,895.00	N/A
Mega Model	$ 995.00	MegaDraw $195, List $295, MegaShade $395
MicroStation PC 3.0	$ 3,300.00	Customer Support Libraries $1,000.00
ModelMate Plus 2.8	$ 1,495.00	N/A
VersaCAD Design 5.4	$ 2,995.00	N/A

Source: Byte Magazine

BYTE MAGAZINE SAYS...

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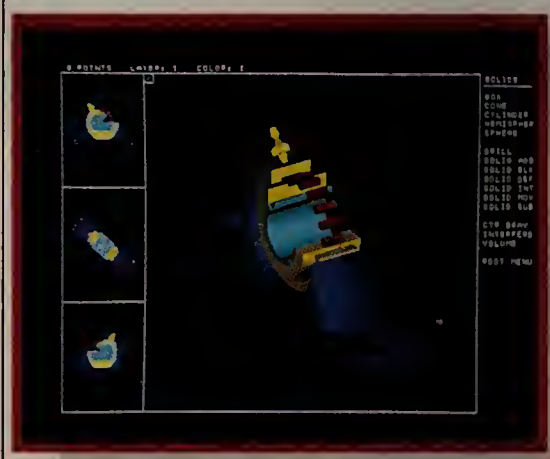
1-(918) 825-4844



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Budget-Wise Accounting

All seven of the accounting packages reviewed here target small business by offering faster data entry, more error control, and closer monitoring of cash flow than traditional accounting methods.

Richard Morochove

STEPHEN RAHN

Accounting may not have a lot of sex and sizzle, but no business—not even a one-person start-up—can forgo a bulletproof accounting system. Without one, you not only risk running afoul of the IRS, but you stand to lose sight of the bottom line.

One temptation for the small-business owner is to delegate as much work as possible to an outside accountant. But reliable CPAs don't come cheap, and you can't always get the information you need from them when you need it. If you find yourself toiling after hours with stacks of ledger paper and a calculator, struggling to determine your current financial position, then the time has come to make the switch to a PC-based accounting system.

Unless you're remarkably quick with a pencil, even a no-frills, inexpensive accounting package will speed up data entry, freeing up you or your employees for other tasks. The real bonus, though, is the ability to keep a close watch on your company's financial status. A package with good reporting features can help you spot changes in cash flow, identify new areas of opportunity, and give you the information you need to adjust your business plan accordingly. Automating your books may not eliminate the need for an accountant—that depends on your in-house expertise—but up-to-the-minute diagnoses of the health of your business can't help but increase financial control and foster intelligent planning.

Ranging in price from $49.95 (Best Buy *Pacioli 2000 1.02*) to $795 (Best Buy *BusinessWorks*), the seven accounting systems reviewed here can usher small businesses from manual to PC-based accounting. Although some of the packages can technically handle companies with more revenue, as a rule these packages are best suited to businesses with $1 million or less in annual sales.

The exact cutoff point, of course, depends on the transaction volume, the nature of your business, and the degree of detailed reporting you require. If you need fully customizable reports, customer-specific billing cycles, or LAN compatibility with suitable security, you may need to consider a more expensive, feature-rich package (see "Net Gains in Multiuser Accounting," July 1989).

The three basic accounting modules—general ledger and financial reporting, accounts receivable (including invoicing), and accounts payable (including disbursements)—come standard with each of these packages. Most include additional functions, such as inventory and payroll, as part of the deal; nearly all provide other modules, such as job costing, at an extra cost.

Accpac Bedford Integrated Accounting 3.3A

Accpac Bedford Integrated Accounting from Computer Associates is one of the easiest programs for the nonaccountant to learn and use. But its minimalist approach to doing the books means it lacks features many businesses find essential.

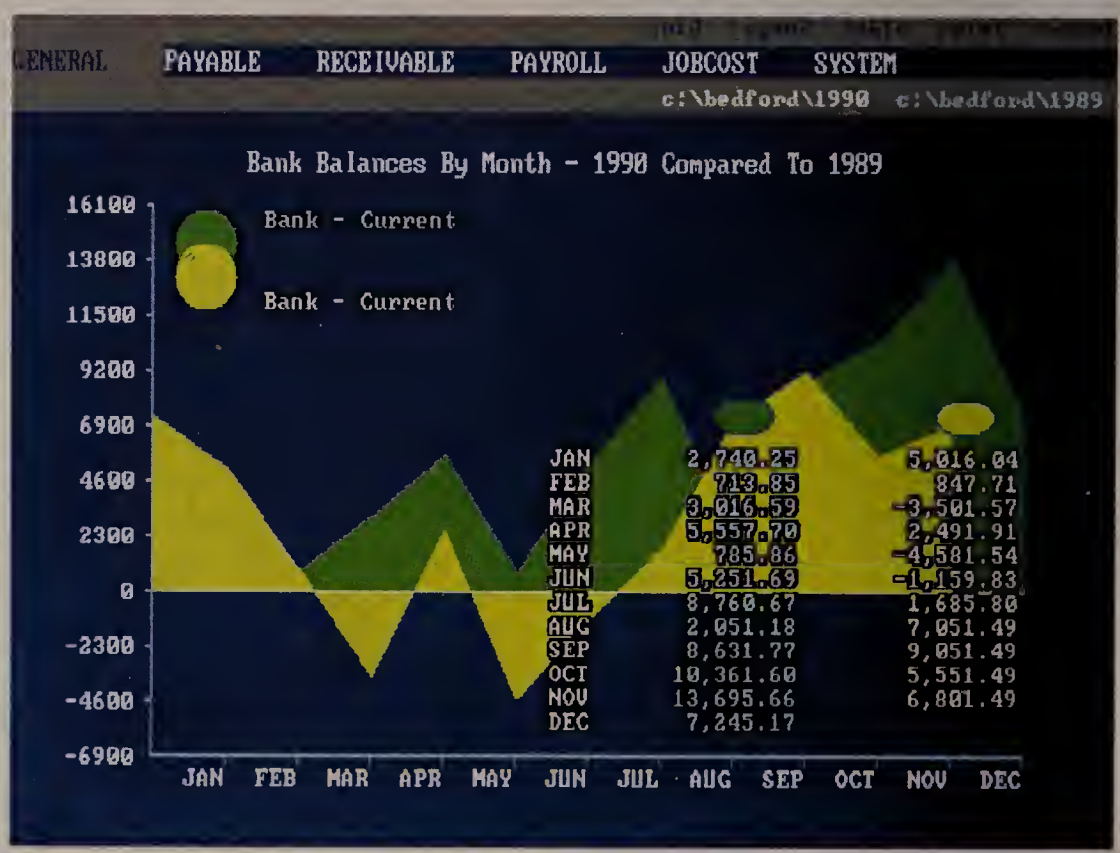
Bedford's accounts receivable and accounts payable modules offer little beyond the basics. You can't set up special billing cycles or payment terms for your customers in receivables, and in payables, you can't automatically reconcile checks or prepare Form 1099.

Bedford doesn't offer the range of reports many small businesses need. It's particularly weak in monitoring the all-important cash flow. For example, the program can't prepare a statement of changes in financial position to show cash flow, nor can it create a payables cash-requirements report.

Still, *Bedford* isn't all limitations. Its financial statement periods are more flexible than those offered by most competing packages, letting you specify any beginning and end dates for a fiscal period. This feature is particularly useful in a retail setting, since you can create weekly financial statements to track performance fluctuations closely.

Bedford is efficiently written and makes little demand on your hardware resources—it's the only program reviewed here that you can run without a hard drive. You can run *Bedford* with just 384K of RAM, though this limits the number of ledger accounts and the transaction capacity.

The package includes a number of



Accpac Bedford Integrated Accounting's optional Graphic and Custom Reporting module can help spot trends in your company's financial performance.

BUYING SMART: FINDING A PACKAGE FOR THE WAY YOU DO BUSINESS

Knowing what to look for is the major hurdle when jumping into a new product category. Here are the must-haves for any small business looking to automate its books.

General Ledger

This is the module most companies consider first. All the accounting functions that summarize overall financial performance are here, as are summaries of data collected in other modules.

There are two ways of recording ledger transactions: on line (or real time) and batch. The on-line method posts your entries as soon as they're approved. The batch method keeps entries in a holding file so you can print them out and review them for errors before they are permanently posted—usually on a monthly basis. Small businesses should generally opt for the on-line method—when you enter a cash receipt, for example, you'll want to see that amount reflected in your bank account at the end of the day rather than at the end of the month. Larger companies with higher transaction volumes—and hence a greater potential for error—will prefer the safety of the batch method.

All the programs reviewed here support at least 500 general ledger accounts, the minimum number necessary to service most small business needs while allowing some room for growth. For even greater flexibility, select a package whose maximum number of accounts is limited only by hard disk space available. Look for a package that displays the entire transaction when you're entering data and that gives you the freedom to set up account codes that fit your business needs. In general, the more digits allowed per account code, the greater your flexibility.

Accounts Receivable and Payable

If you find what you're looking for in a package's accounts receivable module, chances are the accounts payable module will also meet your needs. For example, if the package tracks specific payment terms for a customer, it will usually do the same for a vendor. With both modules, look for support for at least 1000 customer or vendor accounts, or for the ability to expand to maximum disk space.

At the most basic level, an accounts receivable module should print out invoices and automatically recalculate sales tax. Other key features include the abilities to establish customer-specific payment terms, modify past-due aging categories, and charge more than one sales tax on a single invoice.

Flexibility is also the key to accounts payable. If you often take advantage of discounts for prompt payments, you'll want the freedom to take a discount on your remittance advice. Other features to look for are the ability to track vendor-specific payment terms and automatic checkbook reconciliation.

Reporting

Any package can print a balance sheet or an income statement, but beyond these basics, the flexibility and the breadth of financial statements vary considerably. Not all packages support a full array of balance-sheet formats. It's unusual, for instance, to find a statement of changes in financial position for management, summarized balance sheets for tax purposes, and a cash-requirements report in the same package. If a program is short on preformatted reports, custom reporting capabilities can expand your options—but make sure that you can create, modify, and save report formats without having to jump through hoops. Watch out for programs that tie account codes irrevocably to your reports, since this will severely limit your reporting flexibility.

Controls and Security

This category covers two basic functions: ensuring that your books are balanced and restricting access to records. All the packages but one prevent you from posting an unbalanced entry—*Peachtree* gives users the option of turning off this control, but it's hard to imagine any circumstance in which this makes good accounting sense.

All the packages provide at least module-level password protection, which is the minimum you'd want to prevent unauthorized access. Even better, though, is task-level protection, and only *BusinessWorks* offers this added security.

Ease of Use

It takes more than just on-line help to make a system easy to use. In accounting it means having a straightforward installation procedure and reasonable account lookup (being able to look at several accounts at once, for example, rather than having to scroll down through a listing one account at a time). You'll also want several sample charts of accounts from which to choose when setting up your books, as well as a sample company's data to practice with.

We've given you an idea of the hot-button features to look for, and our reviews give each of the packages a thumbs-up or a thumbs-down. The rest is up to you. Once you've narrowed your choices to a few contenders, the only thing left to do is sit down in front of the screen and test-drive the packages yourself. —*R. M.*

FEATURES EVALUATION

Accounting Options You Can Afford

Feature-rich Pacioli 2000 is priced to suit any budget.

● Yes
○ No
◒ Deficient
▼ Limited only by available disk space

	Accpac Bedford Integrated Accounting 3.3A	Act 1 Plus	BusinessWorks 7.0	DacEasy Accounting 4.1 Bonus Pack	One-Write Plus 2.06C	Pacioli 2000 1.02	Peachtree Double Bonus Bundle
Standard features							
List price	$249	$199.50	$795	$229	$299	$49.95	$298
Other modules available							
Inventory	●	●	● [1]	●	◒ [2]	●	●
Payroll	●	●	● [1]	●	●	●	●
Job cost	●	●	● [1]	●	◒ [2]	●	●
Reporter	● [1]	●	●	●	○	●	●
Local area network support	○	● [1]	● [1]	○	○	●	○ [3]
Optional cash-basis accounting	○	●	●	○	◒ [4]	●	○
General ledger							
Maximum number of accounts	500	▼	9998	▼	9998	●	▼
Maximum digits per account code	3	15	6	10	6	10	6
Maximum digits per department code	n/a	n/a	2 [5]	5 [6]	2	9 [6]	2 [5]
Largest entry (number of digits)	10	10	9	10	10	10	10
Displays entire transaction during data entry	●	○	●	●	●	●	●
Automatic recurring entries	○	●	●	●	●	●	●
Accepts entries outside current period	●	●	●	●	●	●	●
On-line processing (no batching required)	●	○	●	○	○	●	●
Multiple companies	●	●	●	●	●	●	●
Multicompany consolidations	○	●	●	●	○	●	●
Maintains budget data	○	●	●	●	●	●	●
Maintains prior year's data	◒ [1]	●	●	●	○	●	●
Accounts receivable							
Maximum number of customers	999	▼	●	▼	5000	●	▼
Handles balance forward and open item accounts	◒ [7]	●	●	●	●	●	●
Prints invoices	●	●	●	●	●	●	●
Customer-specific billing cycles	○	○	●	○	○	●	●
Customer-specific payment terms	○	●	●	●	●	●	●
Automatically computes discounts for prompt payment	○	●	●	●	●	●	●
Automatic recurring invoices	○	●	●	●	●	●	●
Automatically computes finance charges	○	●	●	●	●	●	●
Modifiable intervals for aging	●	●	●	●	●	●	○
Number of past-due aging intervals	3	4	4	6	3	5	3
Automatically computes sales tax	●	●	●	●	●	●	●
Age-dependent dunning notices	○	○	●	●	○	●	●
			BEST BUY			BEST BUY	

[1] Extra-cost option.
[2] Included SuperTrack program can fulfill some of the functions of inventory and job cost.
[3] May be available by press time.
[4] Cash-basis accounting supported in Master module only. Master module includes rudimentary subledgers for customers and vendors.
[5] Department code is included in account code.
[6] Department code is part of account number; maximum 10 characters for both.
[7] Handles only open item accounts.
[8] Account selection isn't flexible.

	Accpac Bedford Integrated Accounting 3.3A	Act 1 Plus	BusinessWorks 7.0	DacEasy Accounting 4.1 Bonus Pack	One-Write Plus 2.06C	Pacioli 2000 1.02	Peachtree Double Bonus Bundle
Accounts payable							
Maximum number of vendors	999	▼	▼	▼	5000	●	▼
Prints checks	●	●	●	●	●	●	●
1099 processing and reporting	○	●	●	●	●	●	●
Vendor-specific payment terms	○	●	●	●	●	●	○
Automatically computes discount for prompt payment	○	●	●	●	●	●	●
Automatically computes trade discount	○	●	◐	●	●	●	○
Check reconciliation	○	●	●	●	●	●	○
Holds payment of disputed amounts	○	○	●	○	●	◐	●
Reporting							
Balance sheet	●	●	●	●	●	●	●
Income statement	●	●	●	●	●	●	●
Statement of changes in financial position	○	●	●	●	○	●	○
User can customize financial statements	◒[1]	●	◒[8]	◒[8]	○	●	●
Financial statements at any time for any period	●	●	●	●	○	●	●
Percentage variances in financial statements	◒[1]	●	●	●	○	●	●
Customer statements	●	●	●	●	●	●	●
Customer mailing labels	●	●	●	●	●	●	●
Aged receivables report	●	●	●	●	●	●	●
Sales analysis by customer	●	●	●	●	●	◐	●[9]
Check register	○	●	●	●	●	●	●
Cash-requirements report	○	●	●	●	○	●	●
Prints reports to screen	●	●	●	●	●	●	◒[10]
Prints reports to file	●	○	●	●	●	●	◒[10]
Exports 1-2-3 files	●	●	●	○	◒[1]	●	●[9]
Controls and security							
Prevents unbalanced entries	●	●	●	●	●	●	◒[11]
Prevents unbalanced financial statements	●	●	●	●	●	●	◒[11]
Warns when customer over credit limit	n/o	○	●	○	●	◐	●
Prevents check payments in excess of charges	●	●	●	○	●	◒	○
Password protection level	module	module	menu	menu[12]	module	menu[13]	module
Ease of use							
On-line help	●	◒[14]	●	●	●	●	●
Account-lookup listing	●	◒[15]	●	●	●	●	●
On-screen detailed account inquiry	●	○	●	●	●	●	●
Includes start-up chart of accounts	●	●	●	●	●	●	●
Includes sample company practice data	●	●	●	○	●	◐	●
Includes tutorial lessons in manual	●	●	●	○	●	◐	●
			BEST BUY			BEST BUY	

[9] Available through Peachtree Data Query III module.
[10] Selected reports only.
[11] User can set up system to accept unbalanced entries.
[12] Each menu item is assigned one of five security levels that can't be changed.
[13] Each menu item is assigned one of nine security levels that can't be changed.
[14] Help is rudimentary and almost useless.
[15] You scroll down the account list one item at a time.

COMPUTERIZING YOUR BOOKS: A SIMPLE, STEP-BY-STEP GUIDE

Your books are a mess, you don't know how much cash you've got in your account, and the bank is clamoring for an aged receivables listing. Will switching to a PC accounting system solve your bookkeeping problems? Probably not.

If your accounting procedures aren't under control before you start entering transactions on a computer, things are likely to get even more fouled up. Get your manual system in order first, then start investigating the move to an automated accounting system.

Those who don't already have an accountant in charge of the books should discuss their needs with a professional

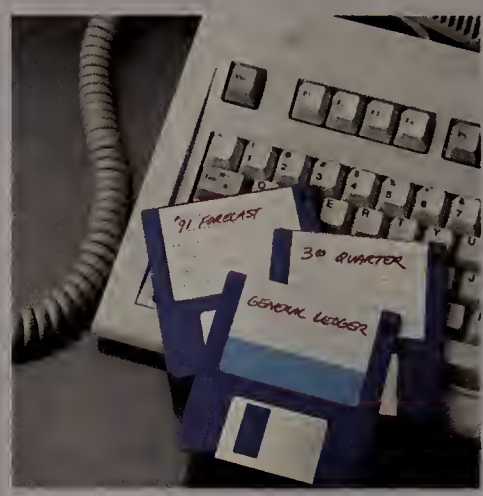
STEPHEN RAHN

who knows both accounting practices and accounting software. A CPA firm should be able to recommend someone with the right qualifications.

Most small businesses have one or two key control areas that are crucial to ensure financial stability. Some companies might need to monitor customer receivables or limit expenses, while others might have to keep an adequate stock of goods on hand while minimizing slow-moving inventory.

Determine what's required in these areas and you'll be well prepared to evaluate the features offered by the accounting packages you're considering.

As you look at the various systems, get a demonstration of how your primary needs are handled by the program in question. Try things out. If invoice preparation is important to you, bring along a few old invoices and recreate them using the accounting system. Make notes about capacity and ease of use. The advantage of this structured approach is that you'll be comparing all the programs to a single standard—



STEPHEN RAHN

your own.

Once you've chosen the system that's right for you, plan the installation process carefully. You may, for example, want to phase in the system slowly, introducing one or two accounting functions at a time. Most important, don't discontinue your old procedures as soon as you start up your computer accounting system; run both systems in parallel for at least two fiscal periods. If the processing results of your old manual and the new computer accounting systems are identical, then you can safely discontinue your old methods. —*R. M.*

nice touches that show a remarkable attention to detail. The first letter of an account name is automatically capitalized for you. When entering a transaction, you don't have to call up the account-lookup list—it appears automatically whenever you need it. And if you're unsure of a date, just hit a cursor key, and up pops a calendar.

On-line help is somewhat skimpy, but it's sufficient to explain the program's relatively straightforward operations. You get a user guide to the program and an accounting manual that explains the basic concepts of debits and credits—a useful start for nonfinancial types.

If you outgrow *Bedford*, you can upgrade to one of Computer Associates' more robust accounting systems, *Accpac BPI* or *Accpac Plus*. These programs will automatically convert your data to the new format, and Computer Associates offers a partial rebate on the purchase price.

Bedford is a snap to set up and use, even for a nonaccountant. Many companies won't be satisfied with the limited feature set, but if you're bookkeeping on a budget or need to run a program on a floppy disk–based PC, this is a good bet.

Act 1 Plus

Act 1 Plus from Cougar Mountain Software packs a powerful accounting wallop, but it's exceptionally difficult to use—more difficult, in fact, than many high-end accounting systems.

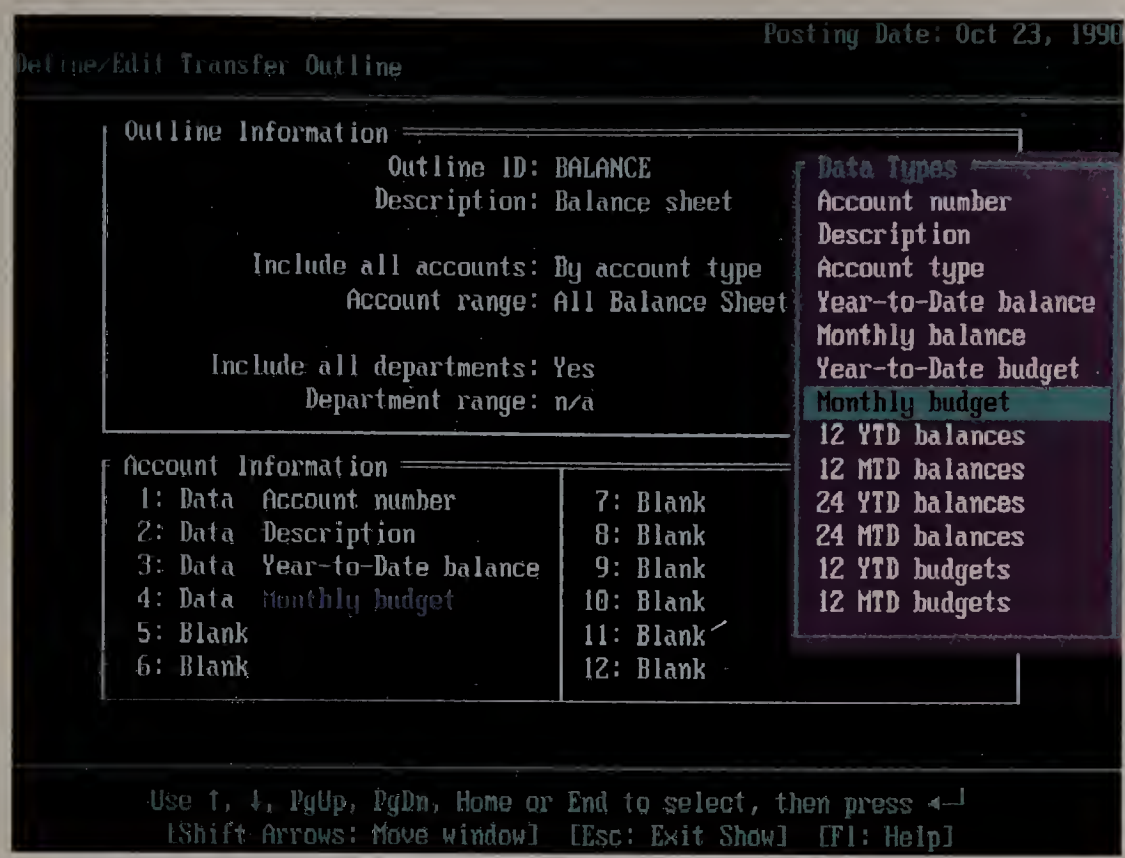
You won't find many features lacking among the three big modules in *Act 1 Plus*, but getting at your data can be tedious and time-consuming. The general ledger module, for example, doesn't display all the details of a transaction as you're entering it. Equally frustrating, the account-lookup listing forces you to scroll down one account at a time. Other cursor control keys that could help speed your way to find the right account, such as **<Page Up>** and **<Page Down>**, don't work.

Act 1 Plus's accounts payable module covers all the basics and adds a little something extra: You can establish a

factor (a third-party financing company, say) as the payee for a trade vendor account. This is a great help when one of your suppliers sells its accounts receivable for financing; most high-end systems don't support this option. The selection of reports is also comprehensive, giving you the full range of reports a small business needs to keep track of its changing financial status.

Cougar Mountain doesn't skimp on information. In fact, you get instructions for programs you don't even have. You get installation-and-use instructions for every version of the program—including network and UNIX versions—in one set of manuals, so you have to wade through pages of irrelevant information. Although there's an on-line help program, it doesn't provide the basic information you'd be looking for.

Poor design—from nonstandard key assignments to a propensity to hide data—together with insufficient help makes this program a bear to use. You'll need to hire a consultant or attend Cougar Mountain's own training seminar. In either case, you'll wind up paying significantly more for *Act 1 Plus* than its $199.50 suggested retail price.



With Manzanita Software Systems' BusinessWorks, you can create a transfer outline for exporting data to Lotus's 1-2-3 or other programs for further analysis.

BusinessWorks 7.0

BusinessWorks just keeps getting better and better. It's packed with all the features you'll ever need to maintain your books, and its artful design means you can get up and running in no time. That winning combination earns *BusinessWorks* a Best Buy.

BusinessWorks is the most expensive product in this group, priced at $795 for the three main modules and the system manager (a control module required to run the program). But considering the wealth of features you receive, it's well worth the higher price.

You'd be hard put to find a general ledger better suited for small-business needs. You'll find everything you need—and more. The module supports the on-line method of recording general ledger transactions, and it keeps transaction details for up to 24 months (most programs limit you to one year's worth). If your business is starting up new concerns, you can keep the books for more than one company.

The receivables module supports all the must-have features, but it lacks a few of the extras that would merit a top rating. Although you get four past-due aging categories, you can't easily modify them to suit your business. The program also lacks support for customer-specific billing cycles.

BusinessWorks offers a full range of reporting options, but you can't easily customize financial statements. For example, you can change headings and group descriptions on financial statements, but it's not so easy to pick and choose the individual accounts that make up the totals. There isn't an add-on data base reporting manager to make the job easier, either. But *BusinessWorks* does offer great export capabilities, supporting *1-2-3* and *dBASE* file formats, ASCII text, and comma-separated values.

Considering its strong capabilities, *BusinessWorks* is surprisingly easy to use. The screens are attractively laid out and understandable. There's plenty of context-sensitive on-line help available at a touch of the <F1> key. The tutorial in the manual uses data for a sample company to walk you through the program. You always have access to lookup windows for accounts as well as for company and report options. *BusinessWorks* includes other great details: A dandy mailing-list utility lets you import names and addresses of customers, vendors, and employees from the accounting data base. And you can use its E-mail function to leave messages for other users of the system—a nice touch, and one we haven't seen in any other single-user accounting program.

BusinessWorks piles on the features without burying ease of use. It's a great choice for many small businesses. Sure it costs more than many of its competitors, but it's money well spent.

DacEasy Accounting 4.1 Bonus Pack

Simply in terms of modules for the money, *DacEasy* beats most of its competitors hands down. Only *Peachtree* offers

DacEasy's Graph + Mate add-on module has now been integrated into DacEasy Accounting, letting users select from a variety of different chart types.

as comprehensive a set. But taking advantage of all of *DacEasy*'s features won't be easy, since the package is one of the more difficult to learn and use.

You get a full suite of accounting applications in the basic package, with inventory and purchase-order modules added to the standard three. At $229, the *Bonus Pack* (reviewed here) adds a payroll program and a videotape tutorial to the basic accounting package. *DacEasy* now requires a 286 and a hard disk, but users with low-end systems and low-end needs can still purchase the floppy-based *DacEasy 3.1.*

Release 4.0 was a significant upgrade. The old *DacEasy* forced you to keep close tabs on your data files, which were fixed in size. The program has finally moved into the modern world, though—the new version dynamically expands your files, growing them automatically as needed.

Unfortunately, the program's archaic account-numbering scheme still hasn't been improved. The financial-report formatting and subtotals are irrevocably tied into the account number. The subtotal accounts must follow the parent accounts in precise sequence. This makes it difficult to reorganize a chart of accounts once you've set it up.

Accounts receivable and payable are both excellent, offering everything you'll need and more. Your number of accounts is limited only by available disk space. Reporting is acceptable, but *DacEasy* doesn't allow you to create statements of changes in financial position. The *DacEasy Graph + Mate* add-on has been integrated into *DacEasy Accounting,* making it easier for you to spot and act on trends in your business *before* they become problem areas.

You can now add accounts, codes, and other items from anywhere in the program. You can even add several items at once. If you are preparing an invoice, for example, you can set up a new customer without having to back out and enter the customer area. You can also set up a new terms code or sales-tax code on the fly. This reorganization of *Dac*'s capabilities matches the way people think; it doesn't require you to follow the flow of the program.

Even with on-line help and account lookup, *DacEasy* remains one of the more difficult programs to use and master. Although this is partially a result of the depth and complexity of its accounting functions, there are areas that could easily be improved. For example, you get just one sample chart of accounts for setting up a company; other programs with simpler chart setups offer you several charts from which to choose.

The security system also leaves something to be desired. There is a five-level password system, but you can't assign different menu items to each password level—the level-three password, for example, lets the user edit data in all files. This system won't help you maintain the segregation of duties needed to improve internal accounting controls.

All things considered, *Dac* delivers one of the more comprehensive sets of accounting tools at a reasonable price. It's in the same price range as the *Peachtree Double Bonus Bundle,* and its modules cover much the same options. However, *DacEasy*'s added capabilities in AR and AP give it an edge over *Peachtree.* Even though it's no longer the outstanding bargain that first caught everyone's attention, *DacEasy* is still a solid value.

One-Write Plus 2.06C

If you're currently using a manual one-write accounting system, you'll feel right at home with *One-Write Plus.* It's not as comprehensive as some of its competitors, but its elegant design and smooth operation make it a smart choice for many small businesses.

New with this release is the Super-Track option, which lets you set up "cards" for inventory and job-costing purposes. Although it's no substitute for a complete inventory module, it will be enough for many smaller businesses. Other improvements include the addition of a budgeting capability in the general ledger and an account-reconciliation feature. You can't compare results to those of the previous year in the general ledger, but *One-Write Plus* is otherwise complete.

You get most of the standard financial reports, with a few exceptions: There is

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386SX under the hood. Light weight under your arm.

In the computer world, power and speed translate into weight and bulk. That means if you're a person on the go, you'd have to play part-time weight lifter, or be willing to sacrifice megahertz and megabytes.

But now those days are over. Because now there's the Altima NSX notebook computer. It's light. It's sleek. And, oh my, is it powerful.

The 80386SX, 32-bit microprocessor runs at 16 MHz. Plus there are two megabytes of RAM that can expand all the way up to eight. The Altima NSX also has a built-in 1.44 megabyte floppy and a 20 megabyte hard drive.

What's more, all of this is packed into a handsome 9 lb. package that can easily fit inside most briefcases.

So now you don't have to carry your attaché in one hand, a portable computer in the other, and your airline tickets between your teeth.

But the exciting part is when you begin working. You'll appreciate the exceptional resolution of the paper white LCD display. You'll admire the VGA screen with its 32-level gray scaling. And you'll be pleased knowing that the 2400 baud modem didn't cost you a penny extra.

If all this isn't enough, how about being able to send a FAX? That's right—a FAX. Altima NSX features a send FAX mode capability that'll let any party with a FAX machine receive an actual paper document.

It's obvious that Altima has thought of everything. But what's nicest of all is they thought of you when putting on the price tag.

altima

Altima Systems, Inc., 1390 Willow Pass Rd., Suite 1050, Concord, CA 94520 800/356-9990

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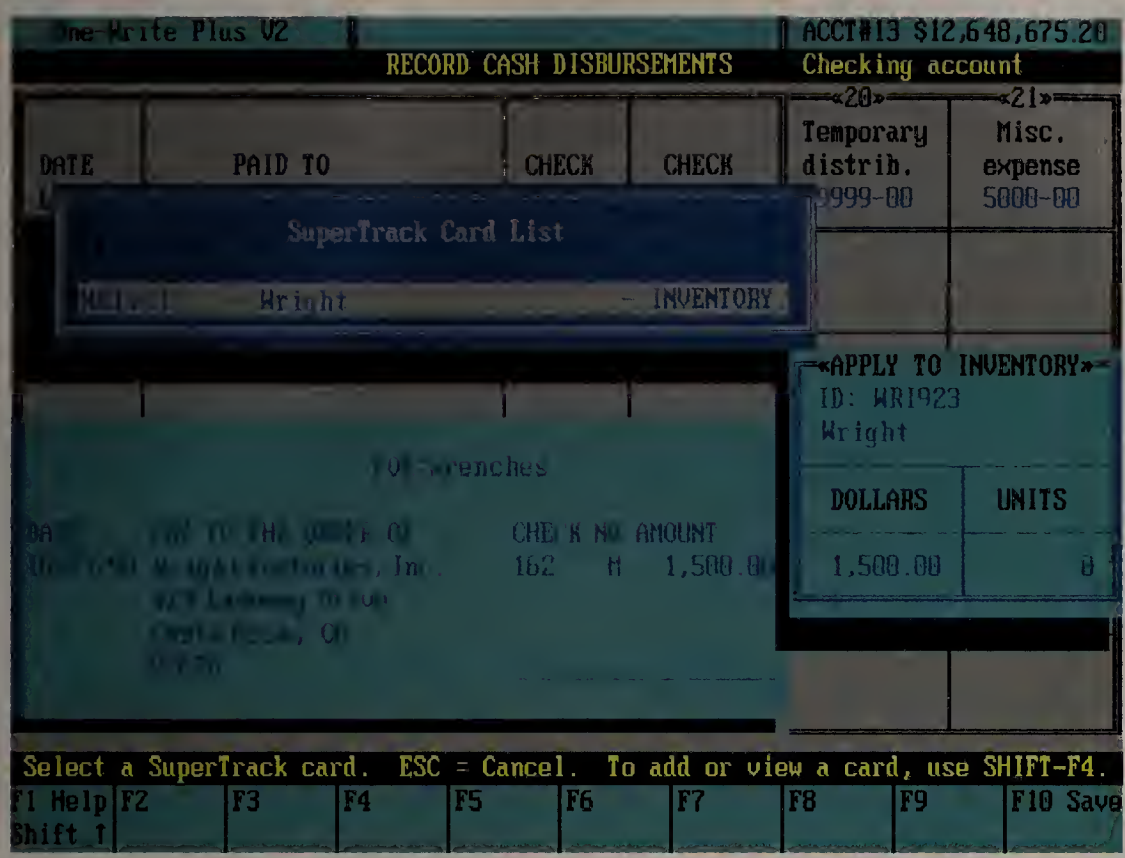


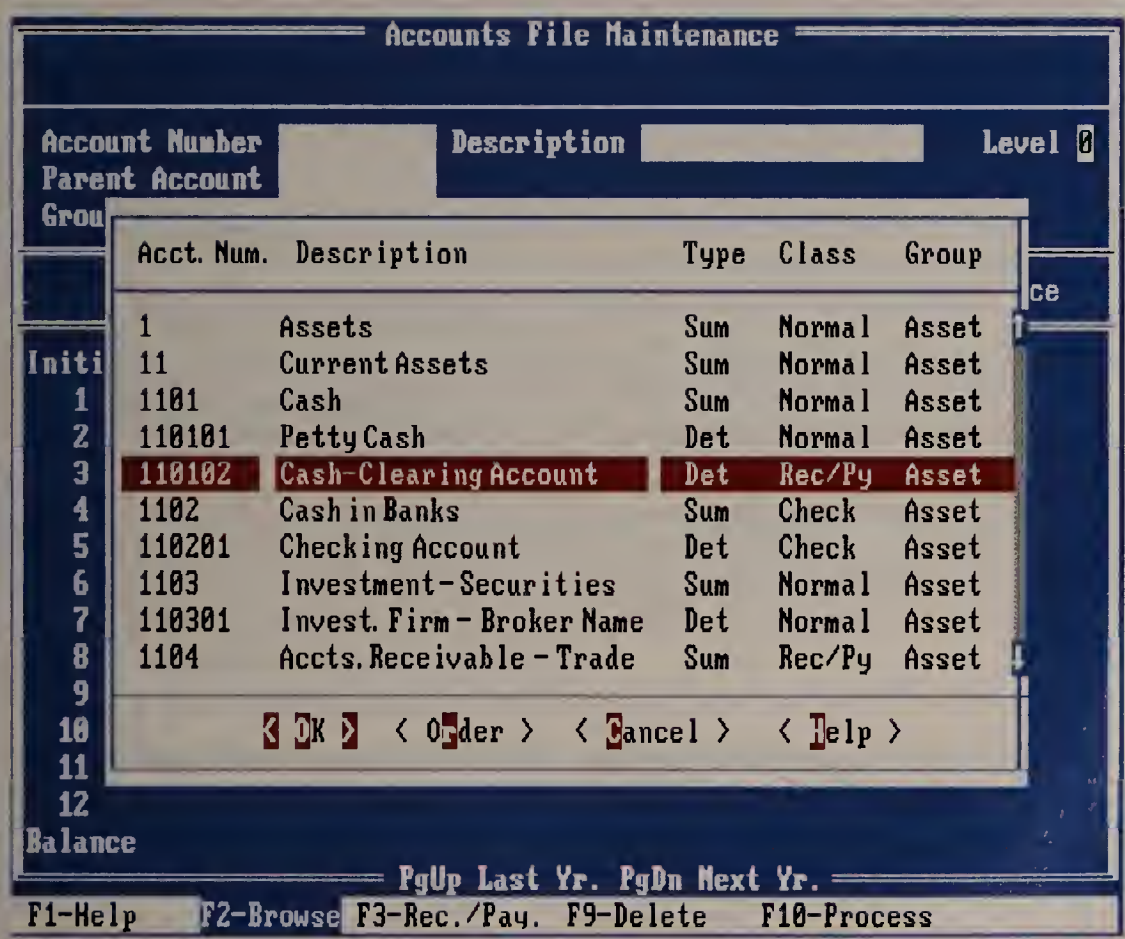
One-Write Plus's new Supertrack feature keeps track of inventory items as you pay for them.

no statement of changes in financial position, for example. One disappointment is that you can't customize the standard balance sheet or income statement.

Great American Software offers a separate program, *@Accounting*, a *1-2-3* add-on that links *One-Write Plus* to the spreadsheet and includes several predesigned formulas. If you don't already have *1-2-3*, you can buy all three programs (*1-2-3*, *@Accounting*, and *One-Write Plus*) in a bundled product called *The Financial Manager*.

Ease of use is one area where *One-Write Plus* really shines. Its screens are laid out like a one-write, pegboard-type system. You charge cash disbursements to different accounts by scrolling across the screen and entering the debits in the proper columns. You can select from over a dozen different charts of accounts covering a variety of industries and business types, more than any other package in this group. A generous-sized account-lookup window is available wherever needed, so you don't need to memorize your account structure or refer to a printout.

One-Write Plus is well suited for a business's first foray into automated accounting. It's got all the basics and is easy to install and use. However, it's not as flexible as some of the other packages, so large companies with demanding needs may find it too limiting.



You can scroll along the lookup window to quickly find the account you want when entering a general ledger transaction in Best Buy Pacioli 2000.

Pacioli 2000 1.02

Pacioli 2000 came in just days before our deadline—and this newcomer looks like a winner. It's about one quarter of the price of its cheapest competitor, yet it includes more modules than most other systems. *Pacioli*'s only serious flaw is its quirky account structure.

Pacioli 2000 and *DacEasy* are quite similar in look and feel. In fact, the same developer designed both products, duplicating here *DacEasy*'s inflexible ledger account structure. Fortunately, though, M-USA has included several sample charts of accounts, which makes setting up your system much less of a pain than it is with *DacEasy*.

Like *DacEasy*, *Pacioli 2000* is feature rich. Accounts receivable and billing (one module) are much better than you would expect from such an inexpensive program. The package even generates dunning notices based on the past-due dates of the past-due-customer-account balances. *Pacioli 2000* is the only program that lets you keep as many as 36 monthly periods open at once, enabling you to post prior-period adjustments up to two years before the current fiscal year.

EXECUTIVE SUMMARY

More Than Just Accounting Basics

Even low-cost accounting software can be rich in features.

These seven packages offer a small- or medium-sized business all the basics—general ledger, accounts receivable, and accounts payable—and more, for keeping close tabs on your financials.

BEST BUY

The newcomer on the scene, **Pacioli 2000** is also the showstopper. It has scads of accounting features and built-in network capability for just $49.95. It's one of our two Best Buys. If you want a more tried and time-tested solution, then **BusinessWorks** should do the trick. It's pricier than **Pacioli,** but it's easier to use.

	Accpac Bedford Integrated Accounting 3.3A	Act 1 Plus	BusinessWorks 7.0	DacEasy Accounting 4.1 Bonus Pack	One-Write Plus 2.06C	Pacioli 2000 1.02	Peachtree Double Bonus Bundle
General ledger	Good	Good	Excellent	Good	Good	Good	Excellent
Accounts receivable	Fair	Excellent	Good	Excellent	Good	Excellent	Good
Accounts payable	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Fair
Reporting	Fair	Excellent	Good	Good	Good	Excellent	Good
Controls and security	Good	Good	Excellent	Fair	Good	Fair	Fair
Ease of use	Excellent	Poor	Excellent	Fair	Excellent	Good	Good
Overall value	Good	Fair	Excellent	Good	Excellent	Excellent	Good
			BEST BUY			BEST BUY	
Reader service no.	620	621	622	623	624	625	626

How we rate small-business accounting systems
We rate small-business accounting software based on information in the Features Evaluation table, combined with our hands-on evaluation of user benefit and ease of use. Accounting functions in the three core modules of general ledger, accounts receivable, and accounts payable are of the most importance. Reporting is next, followed by ease of use, and then controls and security.

General ledger refers to the accounting functions that summarize a company's overall financial performance. To qualify for an Excellent rating, a package should allow for at least 1000 ledger accounts, process journal entries immediately (with no batching), display the entire transaction during data entry, and permit departmental accounting.

Accounts receivable covers the preparation of an invoice to a customer, tracking the customer's balance, and applying the cash received against the balance. To achieve an Excellent rating, an accounting program should permit at least 2000 customer accounts, prepare invoices, allow customer-specific payment terms, and permit at least four user-modifiable past-due aging categories.

Accounts payable concerns the recording of an invoice from a supplier, tracking the amount owed to the vendor, and preparing a check to pay the supplier. To get an Excellent rating, a program should permit at least 2000 vendor accounts, prepare checks and remittance advices, allow vendor-specific payment terms, and have a function to help you reconcile the checks cleared through your bank account.

Reporting covers the preparation and summary of financial and management information prepared by the three accounting modules previously described. To be rated Excellent, a program must prepare a complete set of financial statements (balance sheet, income statement, and statement of changes in financial position), allow you to fully customize the financial statements, print all reports to the screen, and prepare an aged receivables report and cash-requirements listing.

Controls and security weighs equally the capability to maintain the integrity of the assets recorded in the corporate books and the capability to restrict access to the books to properly authorized personnel. To get an Excellent rating, a program must not permit unbalanced entries or financial statements and should restrict access to accounting functions on a menu-item basis that can be defined by the user.

Ease of use, by far the most important criterion, covers the installation, learning, and daily use of all modules of the program. For an Excellent rating, a program should offer superior account-lookup capabilities, at least three starter charts of accounts, and a tutorial that uses sample company data provided on disk.

Overall value combines the ratings for all the preceding criteria, taking into account the price of the package.

The user interface is built for the nineties. There are pulldown menus and dialog boxes to select options. You can even use a mouse to select items or to move along the scroll bar in a lookup window. You get a paperback manual, floppy disks, and a VHS videotape all in one $50 package. The instructional video has lessons covering the basics of accounting, operations of *Pacioli 2000*, and DOS.

Pacioli 2000 is a batch system, but you can print some things, such as invoices, before they're posted. While this isn't as good as on-line processing, it's an improvement over a strict batch method.

You can add accounts in all accounting functions on the fly, without redoing your transaction. This feature is particularly useful in receivables and pay-

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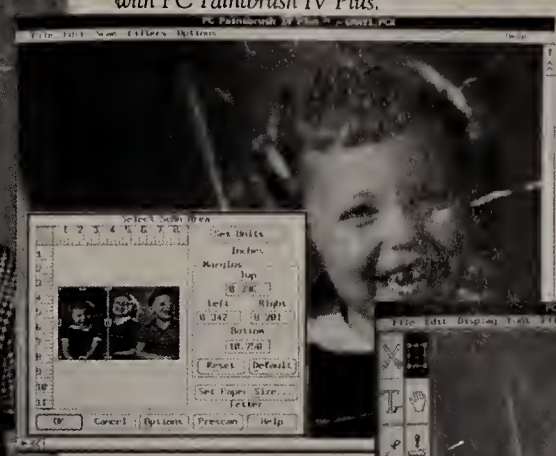

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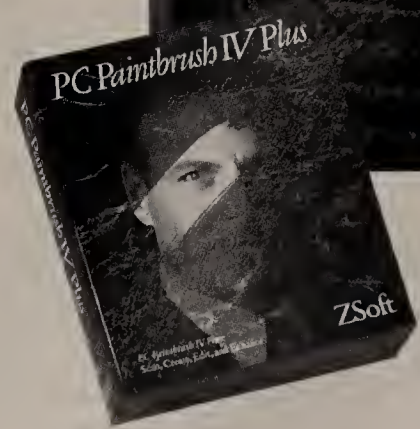

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To update, send $50 plus $4.90 shipping and handling and your original PC Paintbrush Plus program disk to ZSoft Update, Dept. WX, P.O. Box 8123, San Francisco, CA 94128. Specify 5.25" or 3.5" disk. CA (6.25%) and GA (3%) residents, add sales tax. Canadian customers, add $15.90 for air shipping. Outside North America, add $15.90 for surface shipping or $24.90 via air. Payments must be in U.S. funds by check, money order, VISA, MasterCard or American Express. For information on upgrading from other ZSoft paint products call (404) 428-0008

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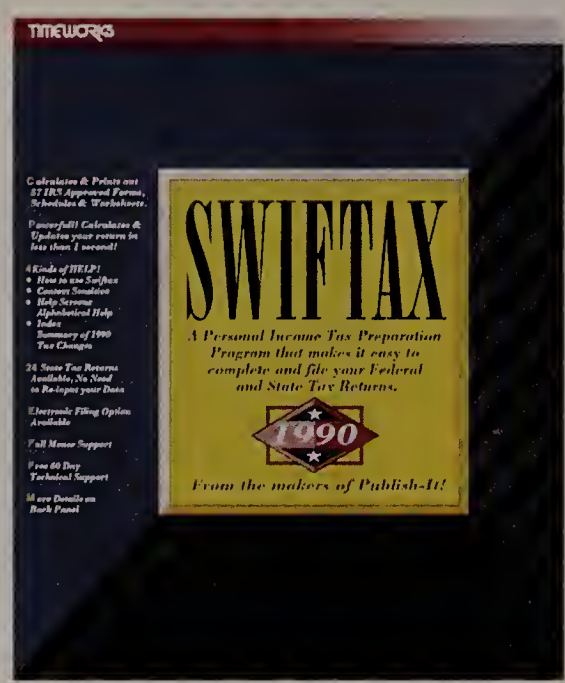

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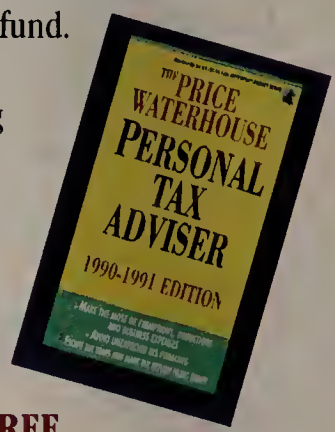

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†Based on the 1987 IRS Adjusted Gross Income Ranges

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ables. However, because of the rigid general-ledger code, it's not likely that you'll add accounts without carefully considering the effect on your reports first.

The password structure is unusual. It allows you to limit access to one of nine security levels. Each menu operation has an assigned security level, but you can't change the level. This means that as with *DacEasy*, if you allow someone to add customer accounts, that user can also add payables accounts.

We'd just started using *Pacioli 2000 1.0* when M-USA sent an updated version (1.02) to correct an early data base bug in the first release. According to a company spokesperson, anyone who purchased version 1.0 was updated free of charge.

It's hard to ignore a deal as good as *Pacioli 2000*. For just $50 you get a comprehensive accounting system *and* a 30-day money-back guarantee. It's a penny-pinching accountant's dream, and one of our two Best Buys.

Peachtree Double Bonus Bundle

If you're looking for a broad selection of accounting features for a reasonable price, *Peachtree* may be the package for you. With the three standard modules plus payroll, inventory, job cost, fixed assets, and purchase order, *Peachtree* offers something for everyone, and it's relatively easy to use. Only its general ledger module is outstanding, however.

Peachtree's file system has been overhauled in the latest version. Files now dynamically expand in size as you enter transactions, so you don't have to preallocate file size. In another much-needed improvement, you can now keep all the detailed ledger entries on line for a year. *Peachtree* used to purge all the details at the end of every month, which made it difficult to prepare analysis schedules for an audit.

Accounts receivable gives you only three system-defined past-due aging categories, but otherwise it covers the bases. Accounts payable, however, is lacking in a few key areas. You can't set up vendor-specific payment terms—a curious omission, since you can do this for your customers. There is no check-reconciliation feature, nor can you automatically calculate your trade discount in payables.

The *Double Bonus Bundle* reviewed here includes the accounting programs and the *Peachtree Data Query III* data base reporter. Although you can buy *Peachtree* for a low $199, some of the most useful management reports are available only with the reporter.

Peachtree's manuals are top-notch. You get a paperback book for each module, as well as accounting and DOS primers. You also get data for a couple of sample companies to practice with, and a tutorial walks you through the operations of one of these companies. You can also pick how you select your menu options—either via pulldown menus or by quick, three-letter commands.

Controls and security are two of the program's weaker areas. By overriding the default, you can post unbalanced entries in the general ledger. It's hard to imagine any accounting situation in which an unbalanced entry would be required, and *Peachtree* would do well to remove this potentially dangerous option. As for security, you can permit access on a module-by-module basis, but you can't choose to limit the use of selected menu options.

At $298 for the *Double Bonus Bundle*, *Peachtree* offers a broad range of accounting functions for small businesses. It's easier to use than *DacEasy* is, but it isn't as strong in the three core modules.

The Choice Is Yours

Ease of use is of prime importance in a small-business accounting package—after all, the idea is to see your accountant less often, not to turn into one. *BusinessWorks*, one of our two Best Buys, really shines in this area, as do *One-Write Plus* and *Accpac Bedford Integrated Accounting*. The latter two packages, however, offer slightly less in the way of raw accounting power.

DacEasy is more difficult to learn than many of its competitors, but it offers a breadth of features few packages can match. *Peachtree, Dac*'s main competitor in the module war, is easier to use, but it isn't as feature rich in the big-three modules.

Finally, there's *Pacioli 2000*. The newcomer to the scene has everything you'll need and more: a comprehensive features set, a low $50 price tag, and a *PC World* Best Buy. The program's biggest drawback is that it hasn't stood the test of time on the market, having been introduced in June of this year. Even so, it looks like a winner.

Richard Morochove is a chartered accountant and president of Morochove & Associates, Inc., a Toronto-based computer consulting firm where he advises clients on accounting software.

For more information about all products in this article, circle reader service no. 902.

POWER TIP NO. 146

No-Case dBASE Indexes

dBASE indexes are case sensitive; *Rototiller*, for instance, will list before *hoe* because uppercase letters sort ahead of lowercase. If you index on a field with inconsistent capitalization and wish to remove case sensitivity, you can use the UPPER() function. For example, typing **INDEX ON UPPER(Tool) TO Tool**, where 'Tool' represents the indexed field, will cause lowercase and uppercase letters to sort identically.

Lincoln Spector
Assistant Editor

WHERE TO BUY

Accpac Bedford Integrated Accounting 3.3A
Computer Assoc.
1240 McKay Dr.
San Jose, CA 95131
800/531-5236,
408/432-1764
LIST PRICE: with general ledger, accounts receivable, accounts payable, inventory, job cost, and payroll $249; Graphic & Custom Reporting $149
REQUIREMENTS: 384K, DOS 3.0 or later version
TECHNICAL SUPPORT: 30 days free support after registering product, two calls maximum on toll number; after initial period, $2 per minute, $20 minimum; SupportPlus Program including toll-free number, free updates, four calls $125 per year
OTHER SUPPORT: BBS, fax
Reader service no. 620

Act 1 Plus
Cougar Mountain Software
2609 Kootenai, Box 6886
Boise, ID 83707
800/388-3038,
208/344-2540
LIST PRICE: with general ledger, accounts receivable, accounts payable, inventory, payroll, order entry, purchase order, check reconciliation, and data import/export $199.50
REQUIREMENTS: 256K, DOS 2.0 or later version, hard disk
TECHNICAL SUPPORT: $75 per hour, toll-free number, M–F 8–5
OTHER SUPPORT: 30-day money-back guarantee, less 15 percent restocking fee; training course ($600)
Reader service no. 621

BusinessWorks 7.0
Manzanita Software Systems
2130 Professional Dr. #230
Roseville, CA 95661-3751
800/531-3552,
800/447-5700
California,
916/781-3880,
916/781-3814 (fax)
LIST PRICE: with general ledger, accounts receivable, and accounts payable modules $795; payroll, inventory, and individual modules $295 each
REQUIREMENTS: 384K, DOS 2.1 or later version, hard disk
TECHNICAL SUPPORT: free for 90 days, then $150 per year (including minor updates); toll-free number, M–F 8–4
OTHER SUPPORT: quarterly newsletter
Reader service no. 622

DacEasy Accounting 4.1 Bonus Pack
DacEasy, Inc.
17950 Preston Rd. #800
Dallas, TX 75252-9988
800/877-8088,
214/248-0205,
214/250-3752 (fax)
LIST PRICE: with general ledger, accounts receivable, accounts payable, cash management, billing, inventory, purchase order, budgeting, payroll, accounting and payroll video tutors $229.95
REQUIREMENTS: 80286/386 recommended, 640K, DOS 3.0 or later version, hard disk
TECHNICAL SUPPORT: BBS support, free updates, newsletter $75 per year; 900 or toll number $1 per minute; M–F 8–5
OTHER SUPPORT: extended support plan on CompuServe, 30-day money-back guarantee
Reader service no. 623

One-Write Plus 2.06C
Great American Software, Inc.
615 Amherst St.
Nashua, NH 13063
800/388-8000,
603/889-5400,
603/881-9337 (fax)
LIST PRICE: with Master module (general ledger and system), accounts receivable, and accounts payable $299
REQUIREMENTS: 512K, DOS 2.0 or later version, hard disk
TECHNICAL SUPPORT: 30 days free support from day of first call; toll-free continuing support $125 per year, covering all purchased modules and including discounted upgrades and access to BBS; $1.50 per minute, 20-minute minimum; M, T, Th, F 9–7, W 11–7
OTHER SUPPORT: BBS
Reader service no. 624

Pacioli 2000 1.02
M-USA Business Systems, Inc.
17440 N. Dallas Pkwy. #207
Dallas, TX 75287
800/345-4243,
214/931-0024,
214/407-0914 (fax)
LIST PRICE: with general ledger, accounts receivable, accounts payable, inventory, purchasing, billing, budgeting, and auditing $49.95
REQUIREMENTS: 640K, DOS 2.1 or later version (3.1 for networks), hard disk
TECHNICAL SUPPORT: unlimited free support; toll number, M–F 8:30–7
OTHER SUPPORT: fax, 30-day money-back guarantee
Reader service no. 625

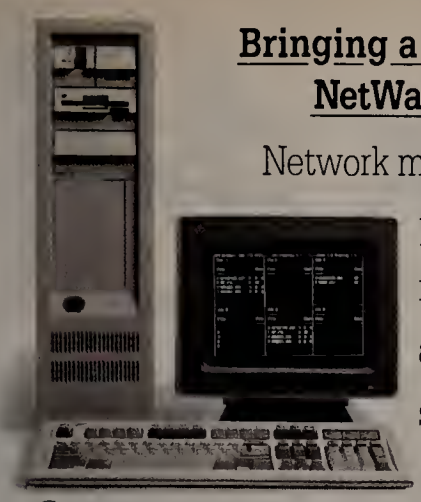
Peachtree Double Bonus Bundle
Peachtree Software
1505 Pavilion Pl.
Norcross, GA 30093
800/247-3224,
404/564-5800,
404/564-5888 (fax)
LIST PRICE: with general ledger, accounts receivable and invoicing, accounts payable, inventory, payroll, fixed assets, job cost, purchase order, Peachtree Data Query III $298
REQUIREMENTS: 640K, DOS 3.0 or later version, hard disk
TECHNICAL SUPPORT: $1 per minute with $20 minimum
OTHER SUPPORT: 30-day money-back guarantee if purchased from Peachtree
Reader service no. 626

POWER TIP NO. 147

Sizing Up Files in Windows 3.0

Before copying a set of files to a directory or a floppy, I like to check how much room the files will occupy. *Windows 3.0*'s File Manager makes this easy. After opening a File Manager directory window, press <Ctrl>-/ to select all file names. The amount of space the files occupy appears in the window's bottom line. Press <Ctrl>-\ to deselect all but the last file selected. To determine the total size of a subset of files, press <Ctrl>-/ and, holding down the <Ctrl> key, use the mouse to click on individual files to deselect. As you click on each name, the total size given for the file group decreases automatically. You can also use the View menu's Include command to limit listed files to a wild-card specification like *.BAT or *.DOC.

Tom Swan
Contributing Editor



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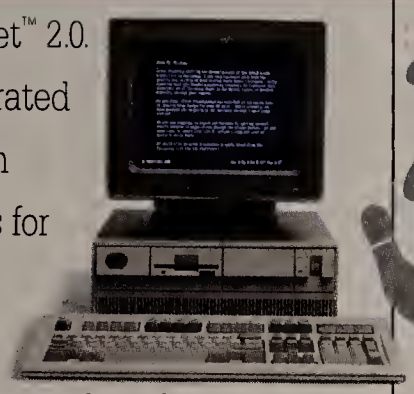
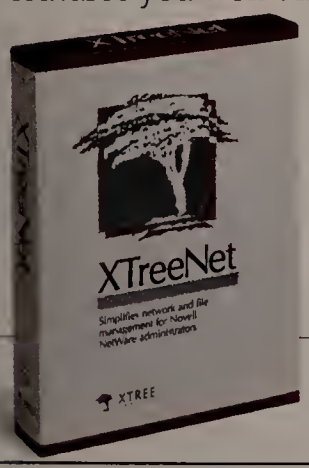


XTreeNet lets you see the entire network at a glance—without leaving your workstation. And it gives you the same award-winning features and performance that have made XTree® the industry standard. As well as many new features you won't find anywhere else.



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The enhanced connectivity features of XTreeNet 2.0 are available for ELS (levels 1 & 2), and Advanced/SFT/386 NetWare with server-based pricing. Current XTreeNet 1.0 customers can receive special upgrade pricing.

So take the first step. Call today for a free brochure, at 1-800-634-5545. In California, at 1-800-551-5353. In Canada, at 1-416-866-8592. And you'll be spending a little less time on your feet.

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Entry Level

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If your application calls for data entry, word processing, or general business support, a low cost entry level system can be an ideal solution.

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* SVGA 1024 x 768 interlaced
*Tower is a registered trademark of NCR Corp.

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- 2 Serial & 1 Parallel ports
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- Real Time Clock/Calendar with 5 Year Battery
- 80287 Co-Processor Support
- AMI BIOS w/full MS/DOS, OS/2, XENIX, UNIX, NOVELL, 3COM and PCNET compatibility
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-Computer Monthly, PC Brand 286

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Circle 198 on reader service card

The Work

Our 386 intermediate systems (the "Workhorses" as we call them) earn their way into your office and onto your desktop through remarkable price and performance.

Designed to meet the complex and demanding workload of today's business environment, they work for a living performing full time applications like Accounting, Desktop Publishing, Data Bases and Local Area Networks with ease.

At an outstanding $799 for a 386SX, or an even more unbelievable $1149 for a full fledged 386DX 25MHz processor, these units will pay for themselves in no time!

Combine this with On-Site Service by TRW†, toll free technical support, custom configurations and other user care programs unheard of in the industry, and your choice is clear-PC Brand.

386SX's From $799

386/SX-16 $799

16 MHz Clock,
Zero Wait Operation
Norton SI 18.7
Landmark™ 18.3MHz,
512K RAM,
1.2MB or 1.44MB Drive,
101-Keyboard,
2 Serial and 1 Parallel Ports

386/SX-20 $899

20 MHz Clock,
Zero Wait Operation
Norton SI 23.0
Landmark™ 25.3MHz,
512K RAM,
1.2MB or 1.44MB Drive,
101-Keyboard,
2 Serial and 1 Parallel Ports

PC BRAND 386/SX's

Add the following amounts to the base configuration prices shown above

Hard Drives: MB/MS	40/25	71/25	125/19	178/15
Mono	$480	$599	$770	$1070
VGA-Mono	$639	$758	$929	$1229
VGA-Color	$825	$944	$1115	$1415
SVGA-Color*	$960	$1079	$1250	$1550

* SVGA 1024 x 768 interlaced

Tower is a registered trademark of NCR Corp.

Standard Features:

- Free On-Site Service by TRW†
- 80386SX Processor Operating at 16 or 20MHz delivering 18 or 22.5MHz Effective Throughput
- 512K RAM expandable to 8MB on the System board using 256K and/or 1MB RAM
- 1.2MB 5.25" or 1.44MB 3.5" Diskette Drive
- FCC Class "A", Intended for business use
- High performance 16bit VGA Cards with optional 1024x768 capability on all VGA Systems
- 1:1 Interleaved Hard/Floppy Drive controllers, 1 Mb/Second disk transfer rates on all 40Mb drives or larger
- Enhanced 101-key Click/Tactile Keyboard
- 2 Serial & 1 Parallel ports
- High Capacity 200 Watt System Power Supply
- Real Time Clock/Calendar with 5 Year Battery
- 80387SX Co-Processor Support
- AMI BIOS with full MS/DOS, OS/2, XENIX, UNIX, NOVELL, 3COM compatibility
- 8 Slot motherboard design (5 16Bit & 3 8Bit)
- Medium foot print case with 6 Disk Drive bays

Options:

- Low profile Slim Line Case with 3 Disk Drive bays
- Mini Size desk top Tower® Case with 4 Disk Drive bays
- Factory Installed RAM Upgrades
- Custom configurations with Name Brand peripherals of your Choice

† TRW National computer Maintenance Services-Free on-site service for 386SX', 386DX', and 486's for customers located within a 100 mile radius of any of over 200 TRW service centers. On site service for 286's available at extra cost. Call for details

Horses.

THIS ISSUE!
NEW 178 MB/15 MS HARD DRIVE WITH CACHING CONTROLLER

"Faster Than A Speeding Bullet"
-Computer Shopper, Cover Story

"The Best Low Cost Alternative Around!"
-PC Magazine, 25MHz 386PC's

"The Biggest Bargain In Personal Computing"
-Computer Buyer's Guide, Cover Story

386/25-$1149

386/25 $1149

25 MHz Clock,
Zero Wait Operation,
Norton SI 28.2
Landmark™ Speed 33.6MHz,
1024K RAM,
1.2MB or 1.44MB Drive,
101-Keyboard,
2 Serial and 1 Parallel Ports

Standard Features:

- Free On-Site Service by TRW†
- True 25MHz Intel 80386 CPU Operating with Zero Wait States
- 1024K RAM standard expandable to 16MB using 256K and/or 1MB RAM
- 1.2MB 5.25" or 1.44MB 3.5" Diskette Drive
- FCC Class "A", Intended for business use
- High performance 16bit VGA Cards with optional 1024x768 capability on all VGA Systems
- 1:1 Interleaving Hard Drive Floppy Drive controllers, 1Mb/Second disk transfer rates on all standard Drives
- Enhanced 101-key Click/Tactile Keyboard
- 2 serial & 1 parallel ports
- High Capacity 200Watt System Power Supply
- Real Time Clock/Calendar with 5 Year Battery
- 80287, 80387, or Weitek Co-Processor Support
- AMI BIOS with full MS/DOS, OS/2, XENIX, UNIX, NOVELL, 3COM compatibility
- 8 Slot motherboard design (5 16Bit & 3 8Bit)
- Medium foot print case with 6 Disk Drive bays

Options:

- Low profile Slim-Line Case with 3 Disk bays
- Full Size Tower* Case with 6 Disk Drive bays
- Mini Size Tower* Case with 4 Disk Drive bays
- Custom configurations with Name Brand peripherals of your choice

PC BRAND 386/25

Add the following amount to the base configuration price shown above

Hard Drives: MB/MS	40/25	71/25	125/19	178/15	320/16	640/15
Mono	$480	$599	$770	$1070	$1870	$2730
VGA-Mono	$639	$758	$929	$1229	$2029	$2889
VGA-Color	$825	$944	$1115	$1415	$2215	$3075
SVGA-Color*	$960	$1079	$1250	$1550	$2350	$3210

* SVGA 1024 x 768 interlaced
*Tower is a registered trademark of NCR Corp.

1-800-PCBRAND

TEL: 1-800-722-7263 FAX: 1-800-722-7392

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International Fax #312-633-2888 International Voice #312-226-5200.
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†TRW-National computer Maintenance Services-Free on-site service for 386SX', 386DX', and 486's for customers located within a 100 mile radius of any of over 200 TRW service centers. On site service for 286's available at extra cost. Call for details.

Pure

Whether used as large scale file servers, CAD CAM workstations, UNIX hosts or statistical simulation engines these machines are guaranteed to satisfy even the hungriest "power applications"-truly mainframes on a desktop.

And like all PC Brand systems, they do it at an unbelievable price! Our 386/25 Cache starts at only $1399 while the top of the line 486's begin at just $3699.

486's From $3699

486/25 $3699

25 MHz Clock,
Zero Wait Operation
Landmark™ 113.6MHz,
4MB RAM,
1.2MB or 1.44MB Drive,
101-Keyboard,
2 Serial and 1 Parallel Ports

486/33 CALL

33 MHz Clock,
Zero Wait Operation
Landmark™ 149.9MHz,
4MB RAM,
1.2MB or 1.44 MB Drive,
101-Keyboard,
2 Serial and 1 Parallel Ports

Standard Features:

- Free On-Site Service by TRW†
- True 25 or 33 MHz INTEL 80486 CPU operating at Zero Wait States
- 4MB RAM standard expandable to 16 MB
- Built-in 8K 4-way set associative cache
- Built-in INTEL 487 Numeric Coprocessor
- FCC Class "A", Intended for business use
- High performance 16bit VGA Cards with optional 1024x768 capability on all VGA systems
- 1.2MB 5.25" or 1.44MB 3.5" Diskette Drive
- 1:1 Interleaving Hard Drive Floppy Drive Controllers, 1 Mb/Second disk transfer rates on all standard Drives
- Enhanced 101-key Click/ Tactile Keyboard
- I/O Ports-2 serial,1 parallel
- High Capacity 200Watt System Power Supply
- 7 Slot motherboard design with one 32bit proprietary Zero Wait States Slot
- AMI BIOS with MS/DOS, OS/2, XENIX, UNIX, NOVELL,3COM compatibility
- Medium foot print case w/6 Disk Drive bays
- On Board NiCAD Battery

Options:

- Low profile Slim-Line Case with 3 Disk bays
- Full Size Tower* Case with 6 Disk Drive Bays
- Mini Size Tower* Case with 4 Disk Drive bays
- 128K Cache upgrade board with Weitek co-processor socket**
- Factory Installed RAM Upgrades
- Custom configurations w/ Name Brand peripherals of your choice

PC BRAND 486's

Add the following amount to the base configuration price shown above

Hard Drives: MB/MS	71/25	125/19	178/15	320/16	640/15
Mono	$599	$770	$1070	$1870	$2730
VGA-Mono	$758	$929	$1229	$2029	$2889
VGA-Color	$944	$1115	$1415	$2215	$3075
SVGA-Color*	$1079	$1250	$1550	$2350	$3210

* SVGA 1024 x 768 interlaced
*Tower is a registered trademark of NCR Corp.
** Not available in Slim-Line Case

†National computer Maintenance Services-Free on-site service for 386SX', 386DX', and 486's for customers located within mile radius of any of over 200 TRW service centers. On site service for 286's available at extra cost. Call for details.

Power.

THIS ISSUE!
NEW 178 MB/15 MS HARD DRIVE WITH CACHING CONTROLLER

If you like, PC Brand can configure and install NOVELL, UNIX and other complex hardware/software combinations at the factory to your exact specifications, taking complete responsibility for putting these products to work.

"...Flawless Compatibility, Lowest Price"

-InfoWorld, Product Review

386 Cache From $1399

386/25 $1399

25 MHz Clock,
Zero Wait Operation
Norton SI 31.6
Landmark™ 43.5MHz,
1024K RAM,
1.2MB or 1.44MB Drive,
101-Keyboard,
2 Serial and 1 Parallel Ports

386/33 $1799

33 MHz Clock,
Zero Wait Operation
Norton SI 45.9
Landmark™ 58.7MHz,
1024K RAM,
1.2MB or 1.44MB Drive,
101-Keyboard,
2 Serial and 1 Parallel Ports

Standard Features:

- Free On-Site Service by TRW†
- True 25 or 33MHz INTEL 80386 CPU operating w/Zero Wait States with 43.5 or 58.7 MHz Effective Throughput
- Intel 82385 Cache Processor with 32K 25NS Static RAM Standard
- 1024K RAM Standard Expandable to 16MB
- FCC Class "A", Intended for business use
- High performance 16bit VGA Cards with optional 1024x768 capability
- 1.2MB 5.25" or 1.44MB 3.5" Diskette Drive
- 1:1 Interleaving Hard Drive Floppy Drive Controllers, 1 Mb/Second disk transfer rates on all standard drives
- Enhanced 101-key Click/Tactile Keyboard
- I/O Ports-2 serial, 1 parallel
- High Capacity 200 Watt System Power Supply
- Real Time Clock/Calendar with 5 Year Battery
- 80387 or Weitek CoProcessor support
- Phoenix BIOS with Full MS DOS, OS/2, XENIX, UNIX, NOVELL, 3COM compatibility
- EMS and Disk Cache in ROM
- 8 Slot motherboard design
- Medium foot print case w/6 Disk Drive bays

Options:

- Full size Tower* Case w/6 Disk Drive bays
- Low Profile Slim Line Case w/3 Disk bays
- Mini Sized Tower* Case w/4 Disk Drive bays
- Custom configurations with Name Brand peripherals of your choice
- Factory Installed Ram Upgrades

PC BRAND 386 Cache

Add the following amount to the base configuration price shown above

Hard Drives: MB/MS	40/25	71/25	125/19	178/15	320/16	640/15
Mono	$489	$599	$770	$1070	$1870	$2730
VGA-Mono	$639	$758	$929	$1229	$2029	$2889
VGA-Color	$825	$944	$1115	$1415	$2215	$3075
SVGA-Color*	$960	$1079	$1250	$1550	$2350	$3210

* SVGA 1024 x 768 interlaced

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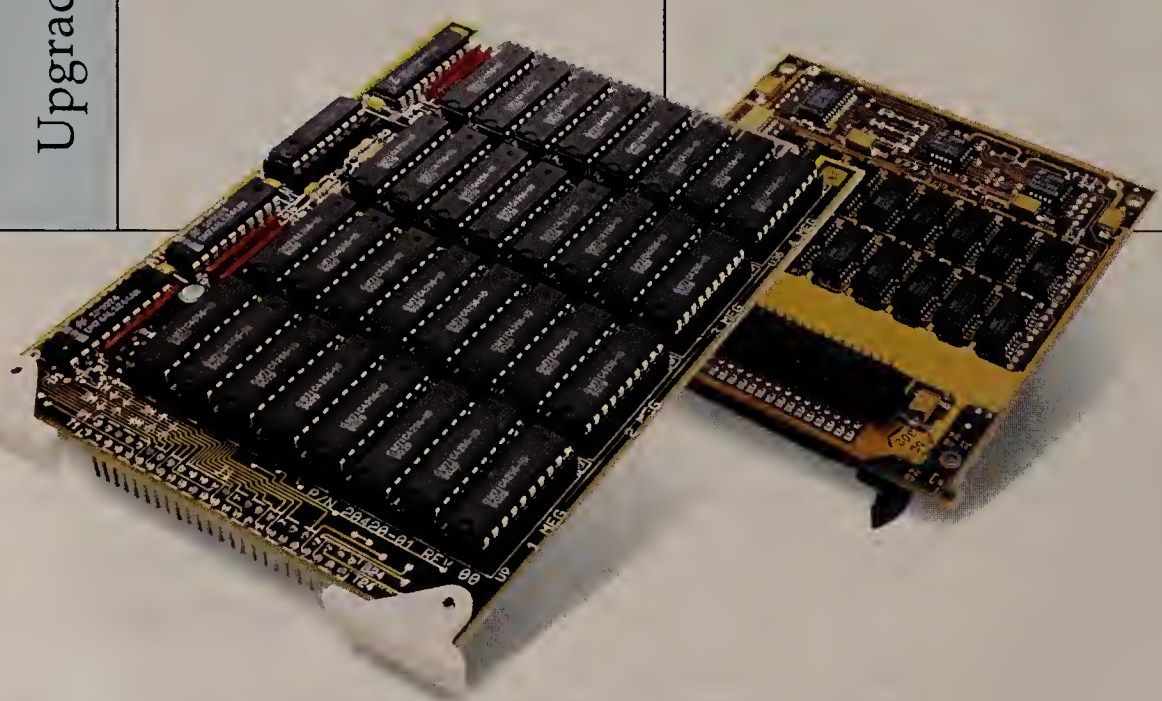
There's more to comparing LaserJet memory boards than just the name

	Pacific Data Products	Hewlett-Packard
Price	1 MB /$199 2 MB /$299 4 MB /$499	1 MB /$495 2 MB /$740 4 MB /Not Available
Warranty	Lifetime	One Year
Upgradeability	Fully Upgradeable to 4 MB	Not Upgradeable



Don't settle for less just to buy the HP label. Get more for less with Pacific Data Products Pacific 4 Memory for HP LaserJet IIP and III printers. With Pacific 4 Memory you get 4 MB of memory for only four dollars more than the price of 1 MB from HP. You also get a lifetime warranty, and upgradeability so you can start with 1 MB of memory, then simply upgrade when you need more. Just use the Pacific Data Memory Upgrade Kit ($99.00). It contains 1 MB of thoroughly tested DRAM chips specifically for Pacific 4 Memory and our 2 Plus 2 memory boards.

To learn how you can get more for less, call your nearest dealer or contact: Pacific Data Products, 9125 Rehco Rd., San Diego, CA 92121, **(619) 552-0880**, Fax (619) 552-0889.

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Circle 237 on reader service card

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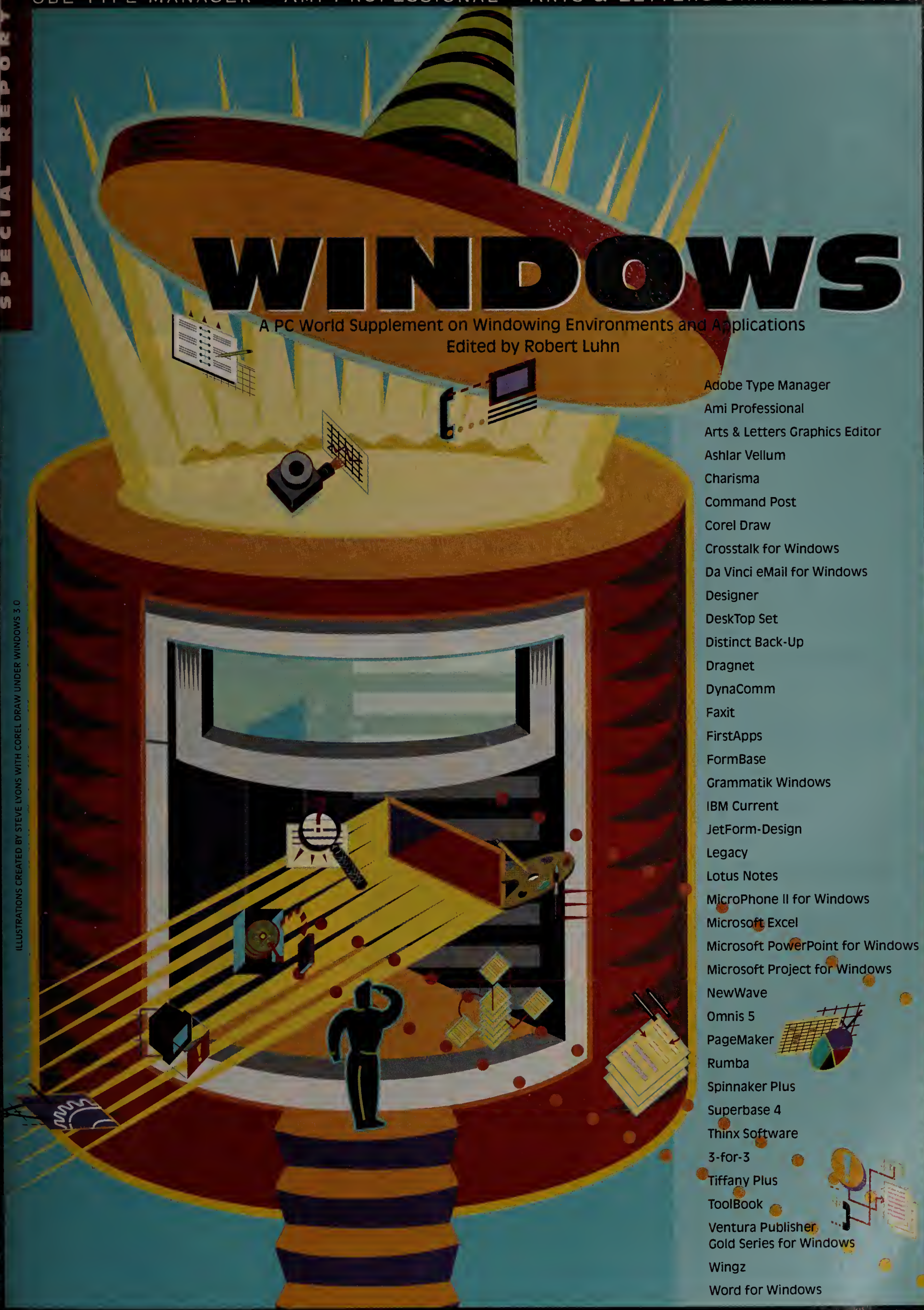
SPECIAL REPORT

WINDOWS

A PC World Supplement on Windowing Environments and Applications

Edited by Robert Luhn



Adobe Type Manager
Ami Professional
Arts & Letters Graphics Editor
Ashlar Vellum
Charisma
Command Post
Corel Draw
Crosstalk for Windows
Da Vinci eMail for Windows
Designer
DeskTop Set
Distinct Back-Up
Dragnet
DynaComm
Faxit
FirstApps
FormBase
Grammatik Windows
IBM Current
JetForm-Design
Legacy
Lotus Notes
MicroPhone II for Windows
Microsoft Excel
Microsoft PowerPoint for Windows
Microsoft Project for Windows
NewWave
Omnis 5
PageMaker
Rumba
Spinnaker Plus
Superbase 4
Thinx Software
3-for-3
Tiffany Plus
ToolBook
Ventura Publisher Gold Series for Windows
Wingz
Word for Windows

ILLUSTRATIONS CREATED BY STEVE LYONS WITH COREL DRAW UNDER WINDOWS 3.0

• DESIGNER • DESKTOP SET • DISTINCT BACK-UP • DRAGNET • DYNACOMM • FAXIT • FIRSTAPPS • FORMBASE •

The Ultimate Windows Buyers' Guide

Robert Luhn

Feast your eyes on 39 *new* applications for *Windows 3.0*, from *Ventura* to *Wingz* to *NewWave* to *Microsoft Project*. Will these be the programs that change the face of PC computing?

Windows 3.0 has arrived with a bang—hundreds of applications in bread-and-butter categories such as word processing, spreadsheets, communications, and data management. We've assembled an illustrated guide to 39 of the most exciting products that run under this blockbuster version of Microsoft's graphical environment. Many of the products pictured here have appeared in *Windows 2.xx* incarnations, but some—such as *Thinx, Legacy,* and *Wingz*—were created from scratch to take advantage of *Windows 3.0*'s speed, memory handling, expanded color palette, and other special talents. Some of the faces in this gallery may also seem familiar. You'll find that DOS stalwarts, including *Crosstalk, Microsoft Project,* and *Grammatik,* have finally taken the plunge into the graphical world.

Will you prefer these products to *WordPerfect, dBASE,* and other established DOS programs? You decide. But *Windows 3.0*'s mix of speed, integration, and plain good looks makes them hard to resist. Plus, many of these programs are not only easier to use, they carve out new territory or tackle an old problem from a different—and often more efficient—angle.

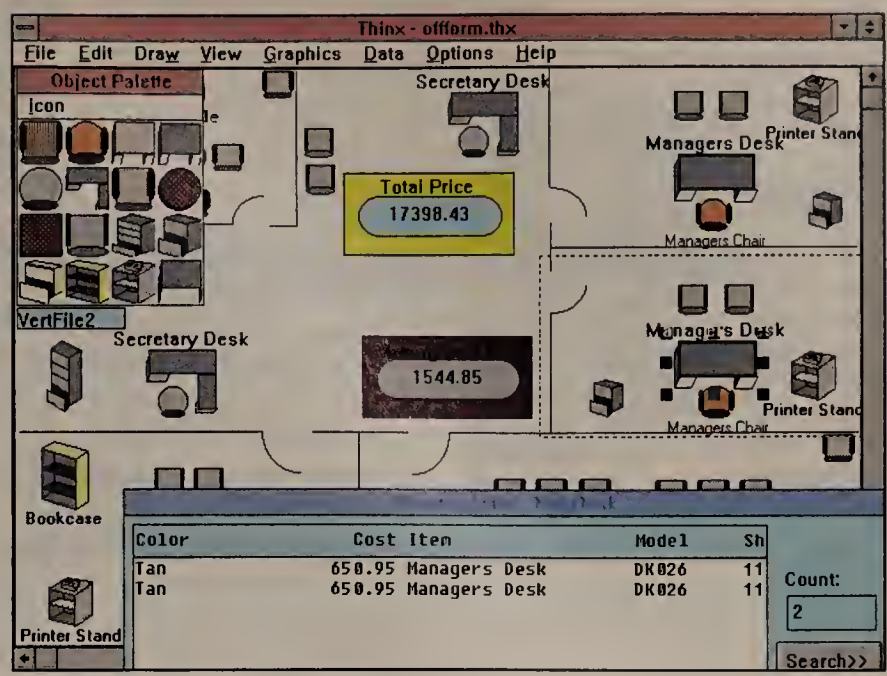
Most of the products shown here were shipping at press time; the scheduled release dates for others are noted. In any case, stay tuned: *PC World* will help you sift through this avalanche of *Windows 3.0* software in upcoming previews and reviews.

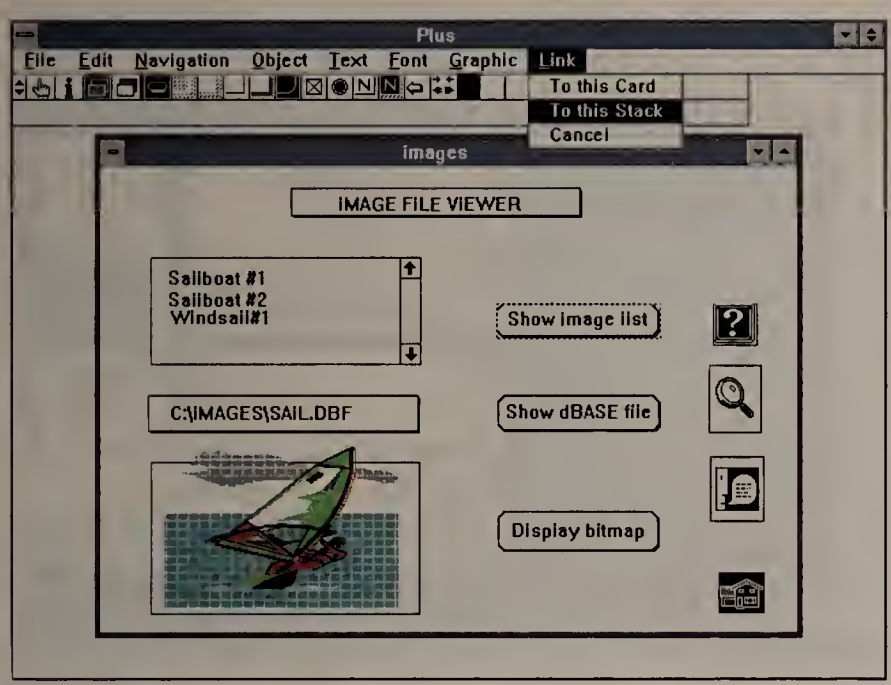
Robert Luhn is a senior editor for PC World.

THINX SOFTWARE 1.0

Bell Atlantic Corp.
13100 Columbia Pike
Silver Spring, MD
20904
800/388-4465,
301/989-4452 (fax)
List price: $495
Reader service no. 661

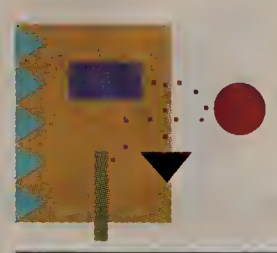
Imagine a program that combines *Designer* with *Excel*, and you have *Thinx*—an "intelligent" graphics program. Instead of manipulating spreadsheet cells, you link data to objects (such as the furniture in this office floor plan), then group, delete, and otherwise manipulate the objects to reach conclusions. *Thinx* is perfect for analyzing the big picture—from equipment management to sales by country.



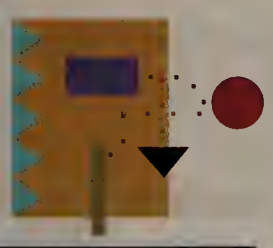


SPINNAKER PLUS 1.0 FOR WINDOWS

Like *ToolBook*, *Plus* is a *Hypercard*-inspired programming tool that uses objects and the card-and-stack metaphor. Two big differences: *Plus* runs on the Mac, *Windows*, and OS/2, and stacks created with one version can be read by the others. This image management application, for example, uses prefab buttons, scrolling fields, and clip art, and defines areas where images and even *dBASE* data can appear.



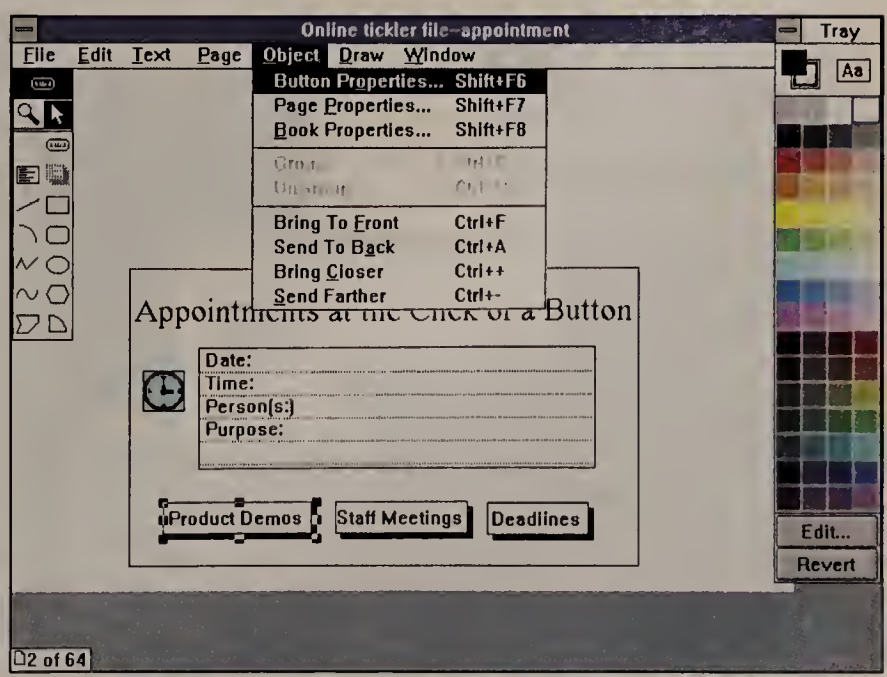
Spinnaker Software
201 Broadway
Cambridge, MA 02139
800/826-0706,
617/494-1200
List price: $495
Scheduled release:
third quarter 1990
Reader service no. 656

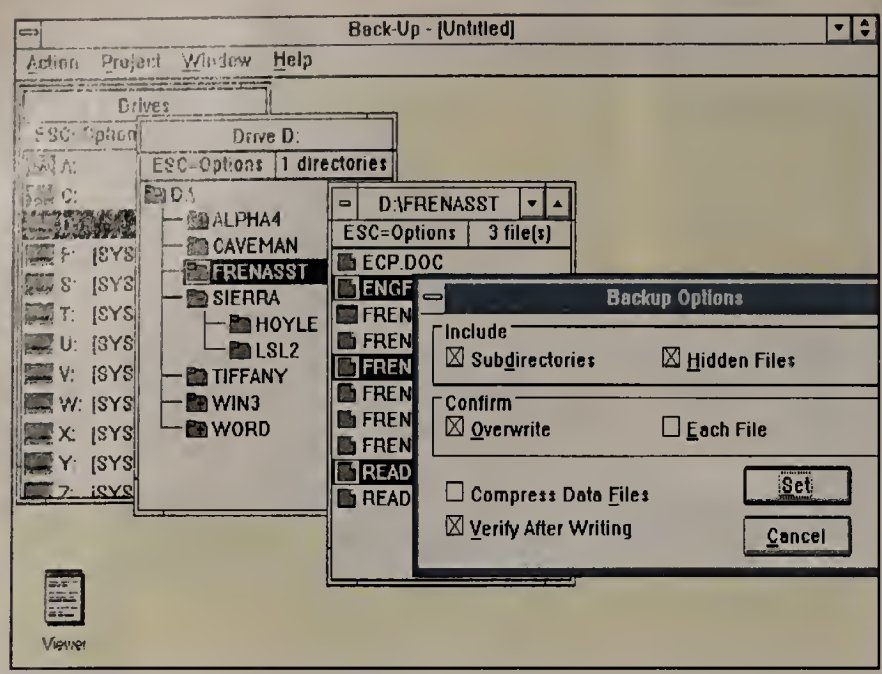


Asymetrix Corp.
110 110th Ave. NE
#717
Bellevue, WA 98004
800/624-8999 ext.
299, 206/455-3071
(fax)
List price: $395
Reader service no. 664

TOOLBOOK

This *HyperCard*-like program brings programming power to almost anyone—who's patient. To build simple applications like this tickler file, you assemble supplied buttons, scrolling fields, images, and other objects with the mouse and then link them to scripts you've recorded or written that perform various actions. *ToolBook* is perfect for everything from small-scale personal programs to interactive tutorials complete with animation and sound.



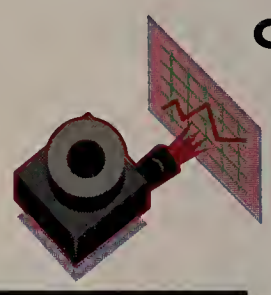


DISTINCT BACK-UP

With *Distinct Back-Up,* you can have the power of *Fastback* under *Windows*—and run backups in the background. With a few clicks, *Distinct* lets you do incremental or full backups by file, subdirectory, or drive. You can save selected files as a backup set; *Distinct* even has a file viewer so you can quickly check file contents.

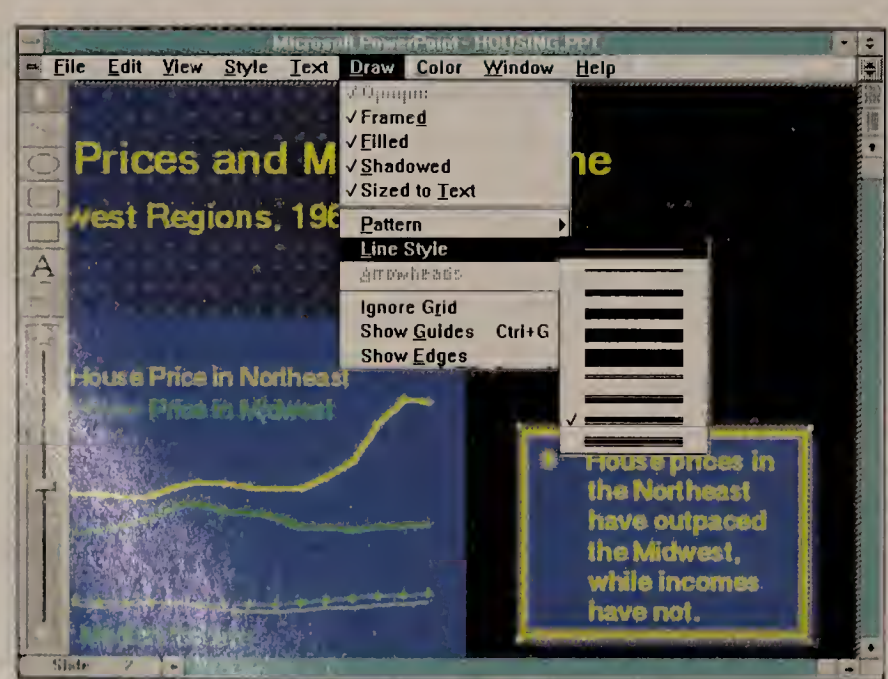
Distinct Corp.
14082 Loma Rio Dr.
Saratoga, CA 95070
408/741-0781,
408/741-0795 (fax)
List price: $129
Scheduled release:
third quarter 1990
Reader service no. 642

CHARISMA 2.0



Charisma is a presentation package, but with its rich *Designer*-like tools, it almost doubles as a draw package. Aimed at professional presenters, the program also provides a wealth of charting options. To pull in one of *Charisma*'s 2200 clip-art images, you just flip through a preview dialog box of thumbnail sketches.

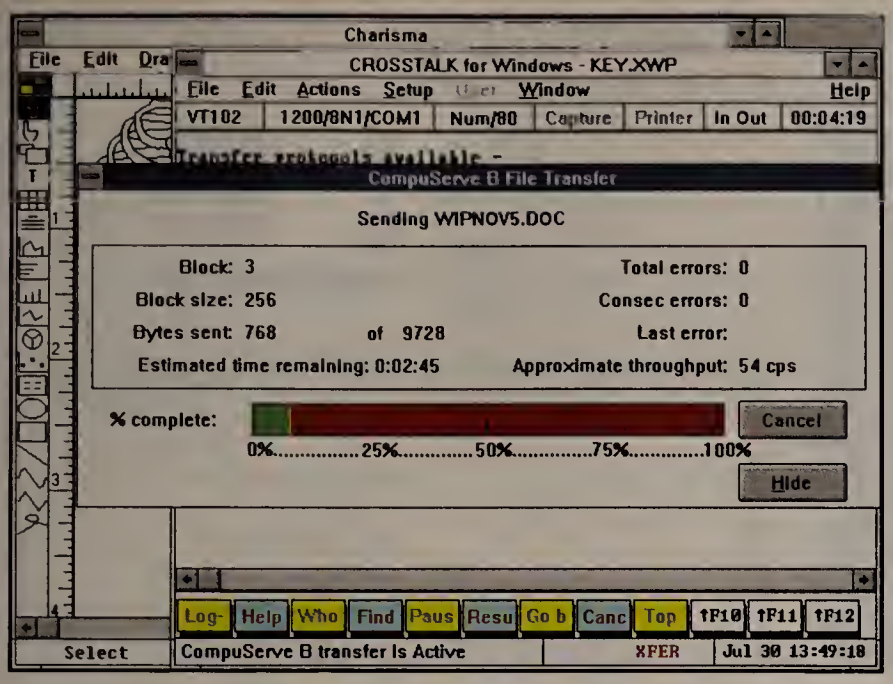
Micrografx Inc.
1303 E. Arapaho Rd.
Richardson, TX 75081
800/733-3729,
214/234-2410 (fax)
List price: $495
Reader service no. 612



MICROSOFT POWERPOINT FOR WINDOWS 2.0

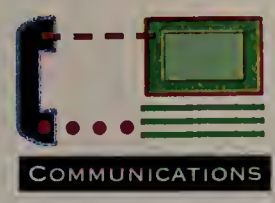
Microsoft PowerPoint for Windows is aimed at business users who need to give presentations but lack the time and graphics skills to prepare them. Thus *PowerPoint* boasts global features that help you organize a presentation from start to finish. You can easily set up and edit global backgrounds, rearrange slides with a click and a drag, and generate speaker notes and handouts. In this view, *PowerPoint* displays a selection of different line styles.

Microsoft Corp.
One Microsoft Way
Redmond, WA
98052-6399
800/426-9400,
206/882-8080
List price: $495
Reader service no. 616



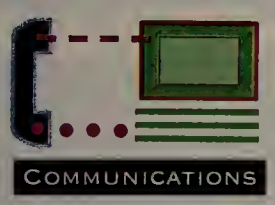
CROSSTALK FOR WINDOWS 1.1

Crosstalk for Windows is easier than *Crosstalk XVI* or *Crosstalk Mk.4*, and it offers functionality somewhere in between. Although it lacks *Mk.4*'s extensive terminal emulations, the program does provide a complete selection of transfer protocols, a capable script language, and DDE links. Here, the user pops out of a *Charisma* session to transfer a file on CompuServe, with the aid of a user-customized function-key template of CompuServe commands at the bottom of the screen.



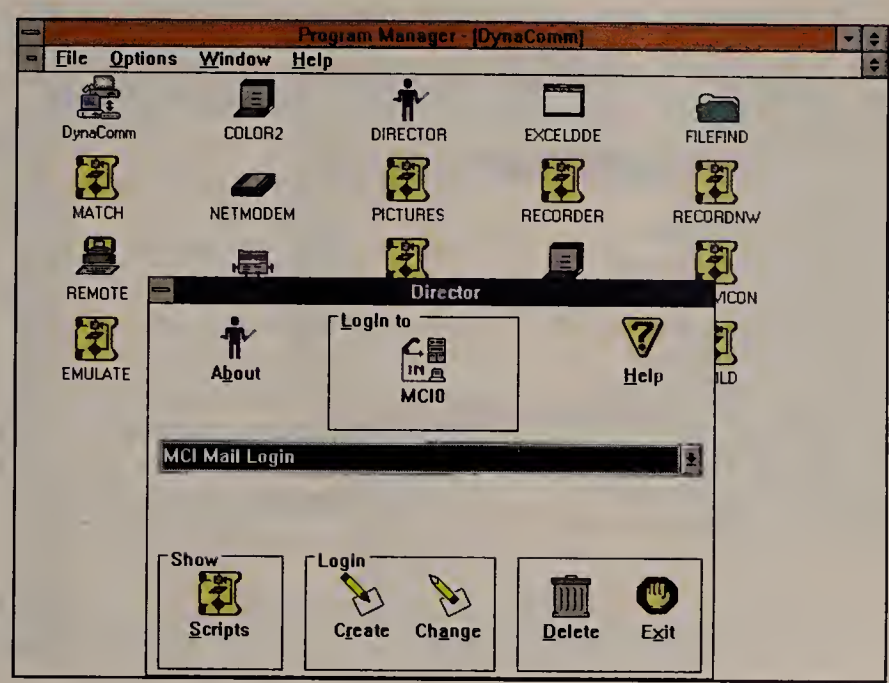
Digital Communications Associates
1000 Alderman Dr.
Alpharetta, GA
30202-4199
800/241-4762,
404/442-4930
List price: $195
Reader service no. 637

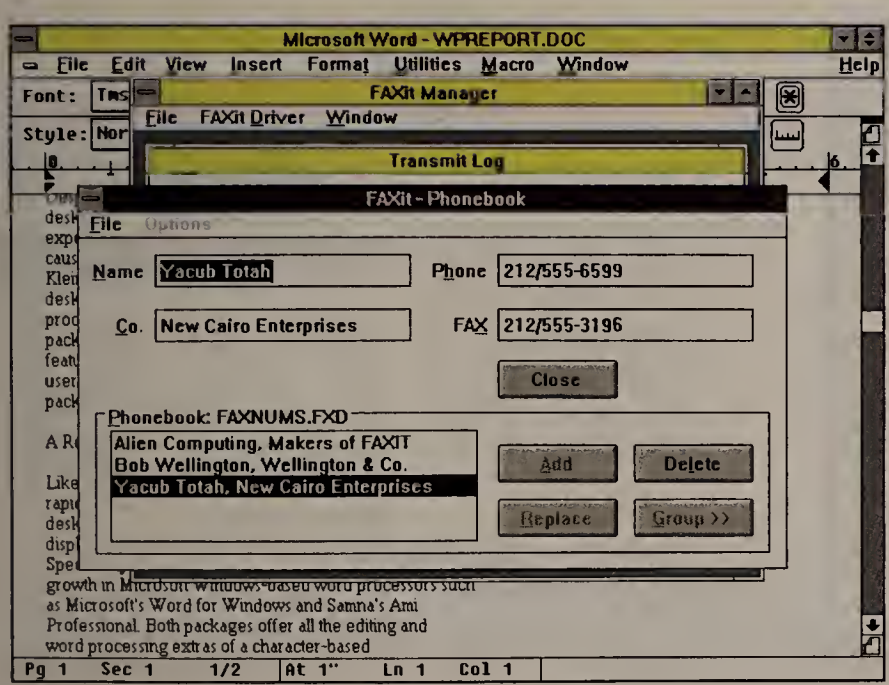
DYNACOMM 3.0 ASYNCHRONOUS EDITION



DynaComm is a full-blown communications program that sports a powerful script language. You can build custom applications, menus, and dialog boxes, remap the keyboard, and call on more than 275 script commands and functions. The desktop organizer shown here is actually a supplied script that lets you easily log on to services, write scripts, and more.

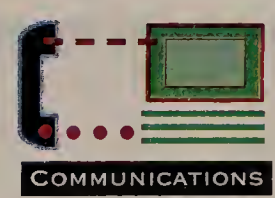
Future Soft Engineering
1001 S. Dairy Ashford
#101
Houston, TX 77077
713/496-9400,
713/496-1090 (fax)
List price: $295
Reader service no. 644



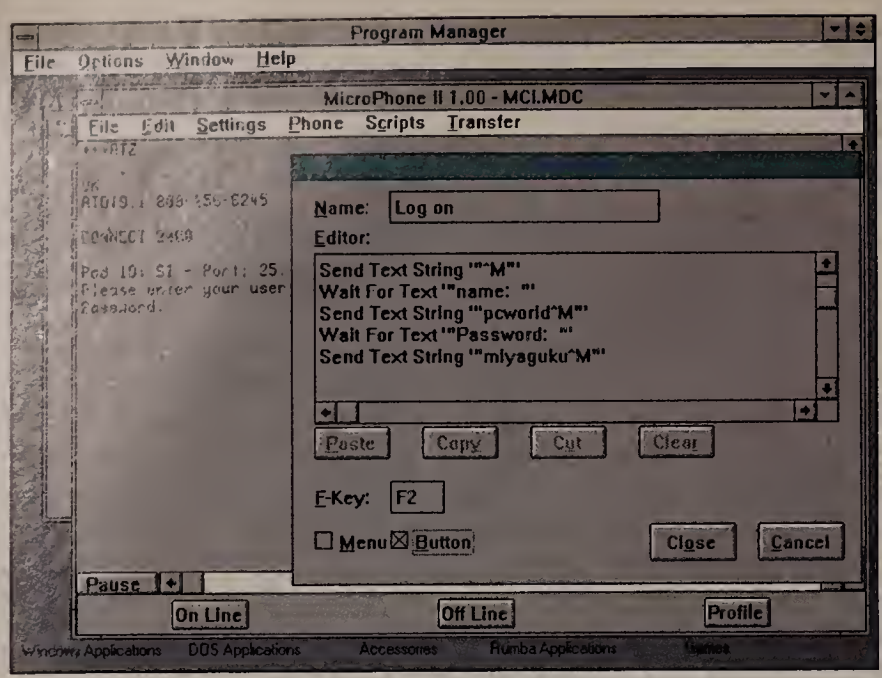


FAXIT

If you're tired of waiting in line at the fax machine, *Faxit* is for you. Add a fax board to your PC, and *Faxit* sends your documents, complete with graphics and fonts. Just pop this phone book over your application, select the addressee, and *Faxit* does the rest. The program also receives faxes in the background and handles fax printing and viewing.



Alien Computing
37919 50th St. E
Palmdale, CA 93550
805/947-1310,
805/947-1387 (fax)
List price: $199
Reader service no. 646



MicroPhone II for Windows

MicroPhone II is your basic communications package with some extras thrown in. With a built-in learn mode, you can create scripts that automate a number of on-line operations. You can also build scripts from scratch by clicking and assigning predefined scripts to context-sensitive on-screen buttons (such as 'Download file') or function keys.

COMMUNICATIONS

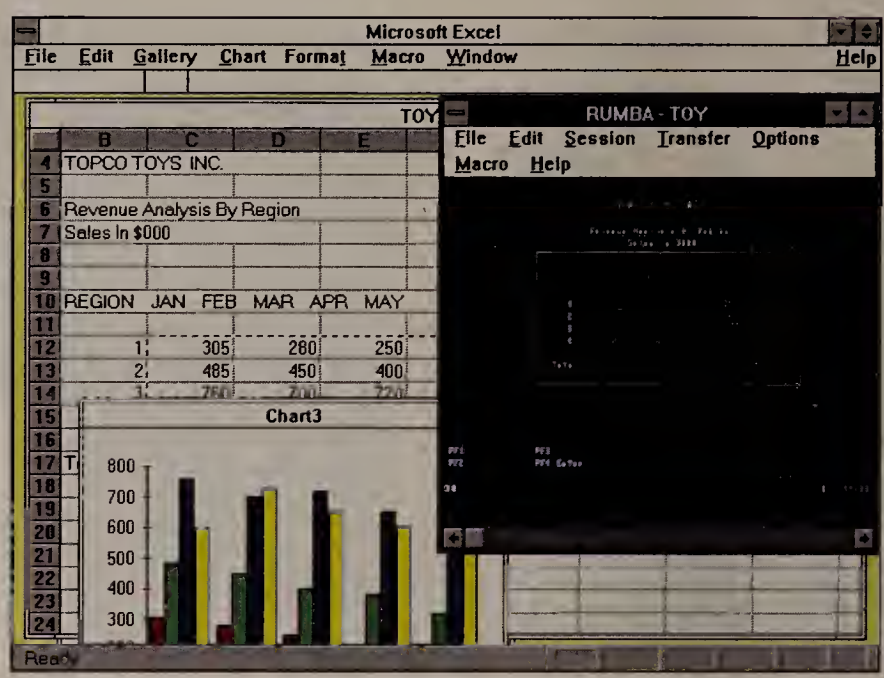
Software Ventures Corp.
2907 Claremont Ave.
#220
Berkeley, CA 94705
415/644-3232
List price: $295
Reader service no. 653

COMMUNICATIONS

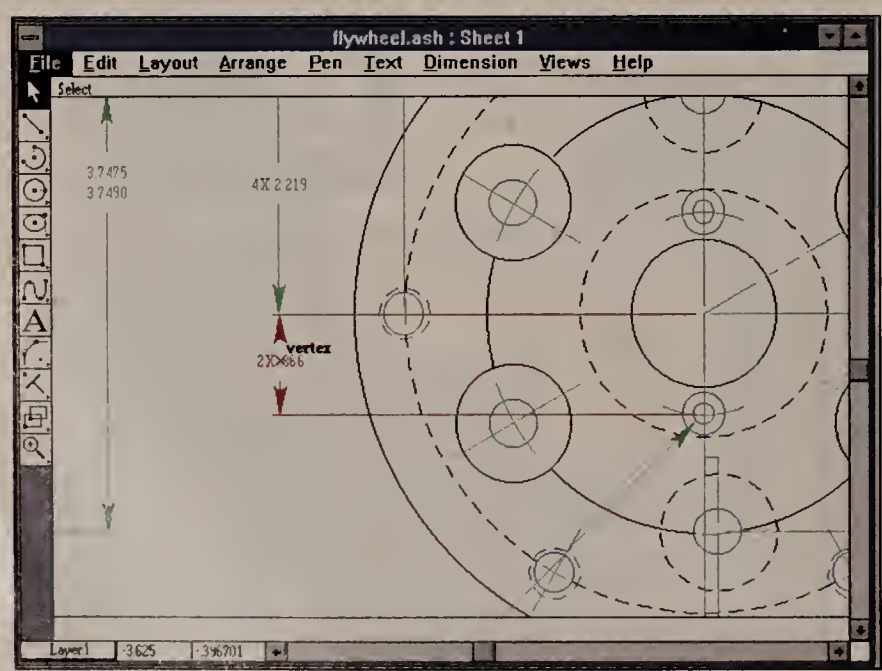
Wall Data Incorporated
17769 N.E. 78th Pl.
Redmond, WA
98052-4992
800/433-3388,
206/883-4777,
206/885-9250 (fax)
List price: $595
Reader service no. 659

Rumba 3.0

Need to snatch data off the company mainframe with a few mouse clicks? *Rumba* can automatically log onto an IBM 3270 and hot link dynamically changing data into *Excel*, which in turn can graph the updated information live. With *Rumba's* powerful script language, you can easily remap the keyboard by session and add custom buttons that summon 3270 functions or *Rumba* macros.



For more information about all products in this section, circle reader service no. 903.

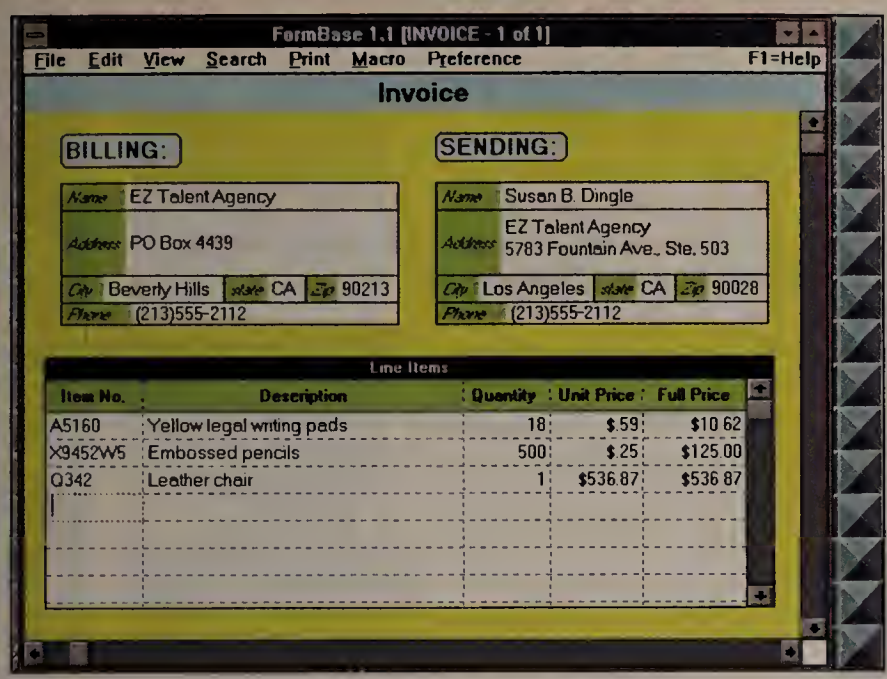


Ashlar Vellum

Equipped with a groundbreaking user interface that actually guesses your intent, *Ashlar Vellum* makes it easy for CAD users to create precise drawings. Move the cursor near an important parametric point in a drawing, and a label appears that identifies the point—an intersection, midpoint, endpoint, or, in this case, a vertex. Click the mouse once to accept *Vellum's* suggestion, and instantly establish a true point that would take several menu choices to select in a conventional CAD package.

COMPUTER-AIDED GRAPHICS

Ashlar Inc.
1290 Oakmead Pkwy.
#218
Sunnyvale, CA 94086
408/746-3900,
408/746-0749 (fax)
List price: $1995
Reader service no. 633



FormBase 1.1 Windows Edition

Designed with the average user in mind rather than the data base professional, *FormBase* uses desktop publishing–quality forms as its central metaphor. Although nonrelational, *FormBase* lets you place a multiple-record list into a one-record form, as in the Line Items table on the invoice entry screen shown here.

DATA MANAGEMENT

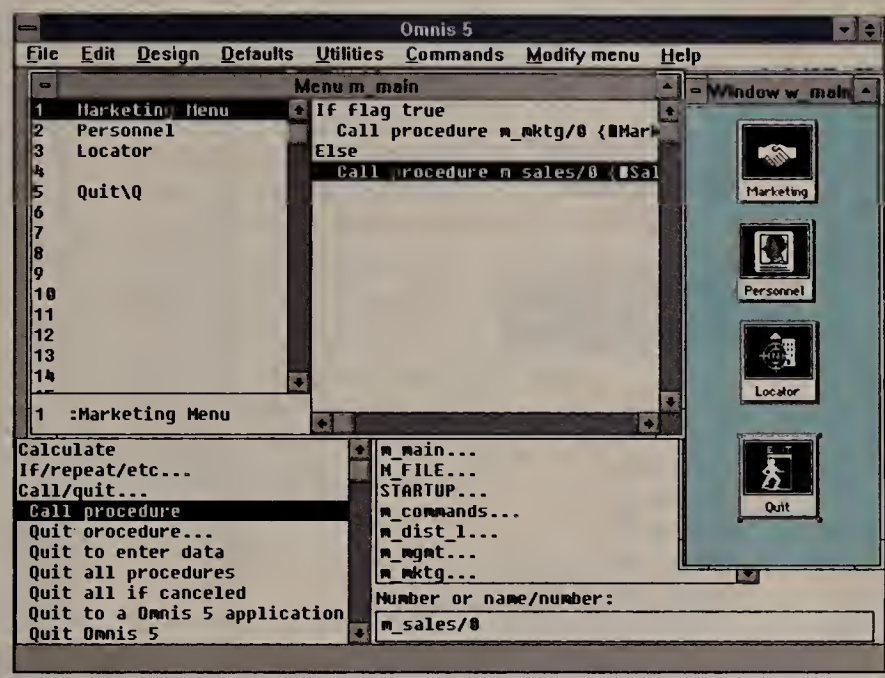
Ventura Software, Inc.
15175 Innovation Dr.
San Diego, CA 92128
800/822-8221,
619/673-7672 (fax)
List price: $495
Reader service no. 648

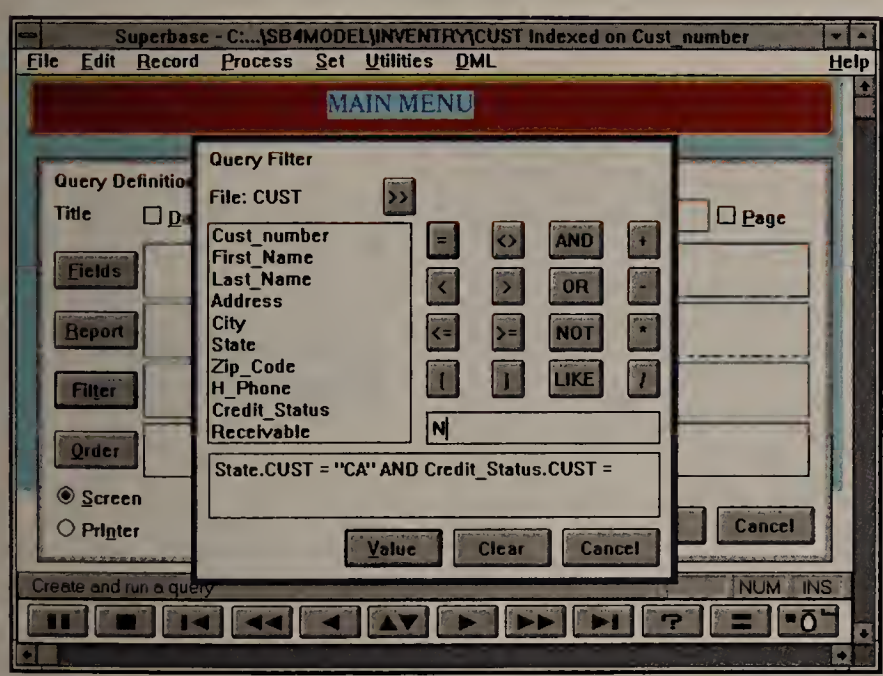
DATA MANAGEMENT

Blyth Software Inc.
1065 E. Hillsdale Blvd.
#300
Foster City, CA 94404
800/843-8615,
800/223-8050
California,
415/571-0222
List price: $1000
single-user version;
additional users $99
each
Reader service no. 655

Omnis 5

Intended for the corporate data base developer, *Omnis 5* is not a tool to pick up and start using right away—even when designing a custom menu. With DDE, support for mainframe data formats and several flavors of SQL, plus compatibility with the Macintosh version, *Omnis 5* is a good tool for multiplatform environments.

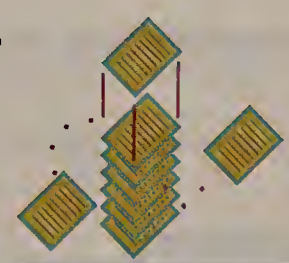




Superbase 4

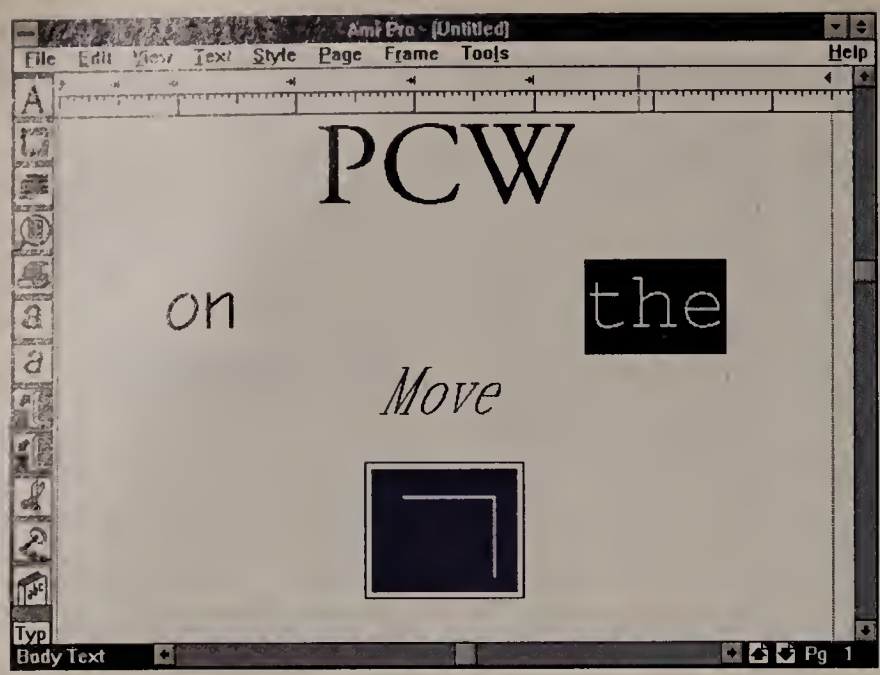
This relational, programmable data base is intended for both professional designers and casual users. Features include a strong forms designer, DDE, *dBASE* file support, and a row of VCR-style data navigation buttons at the bottom of the screen. Option buttons abound, as in this pop-up filter box from the query menu.

For more information about all products in this section, circle reader service no. 904.



DATA MANAGEMENT

Precision Software
8404 Sterling St.
Irving, TX 75063
800/562-9909,
214/929-4888,
214/929-1665 (fax)
List price: $695
Reader service no. 660



ADOBE TYPE MANAGER WINDOWS VERSION

Jaggies begone! *Adobe Type Manager* supplies *Windows* with smooth, high-quality screen and printer fonts, letting you use even PostScript fonts on LaserJet printers. In this screen, *ATM* realistically renders Garamond, Tekton (an Adobe PostScript face), Courier, and Roman.

DESKTOP PUBLISHING AND FONTS

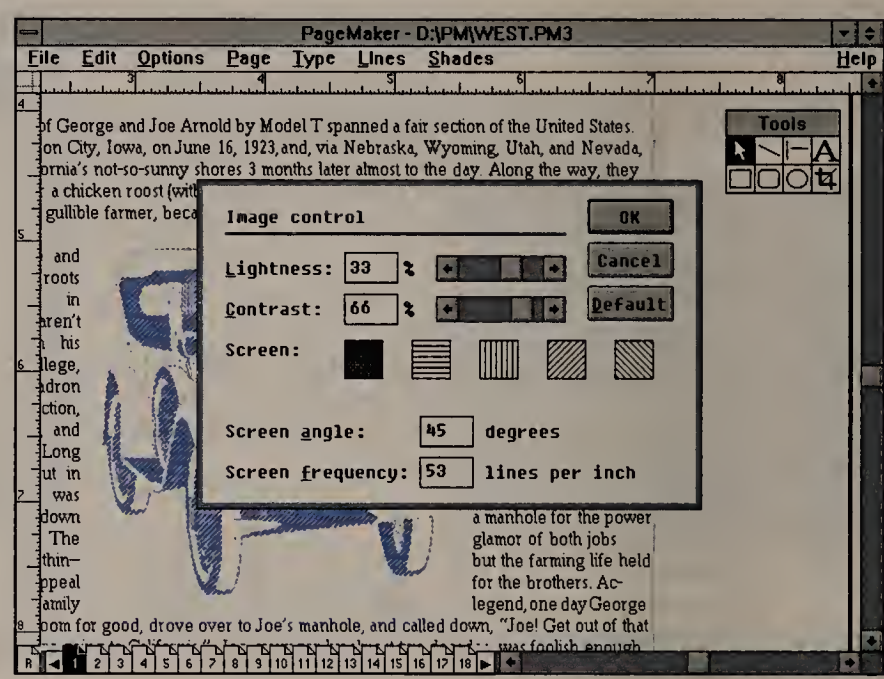
Adobe Systems Inc.
1585 Charleston Rd.
P.O. Box 7900
Mountain View, CA
94039-7900
415/961-4400
List price: $99, Plus Pack (22 typefaces) $198, Type Sets $99 each
Reader service no. 630

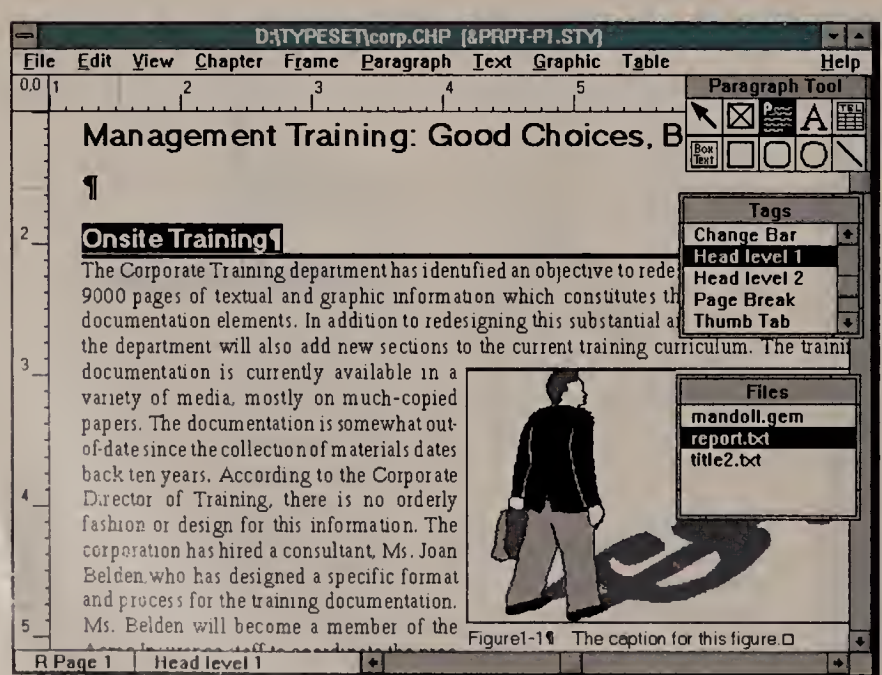
PAGEMAKER 3.01

DESKTOP PUBLISHING AND FONTS

Aldus Corp.
411 First Ave. S
Seattle, WA
98104-2871
206/628-6594
List price: $795
Reader service no. 668

Like *Excel, PageMaker 3.01* is the current version tweaked to work under *Windows 3.0.* As this screen shows, *PageMaker* can automatically wrap text around images and lets you specify colors and even control image attributes. Under *Windows 3.0, PageMaker* mostly gains speed—Aldus claims that opening files, turning pages, and moving graphics can be 50 percent faster.





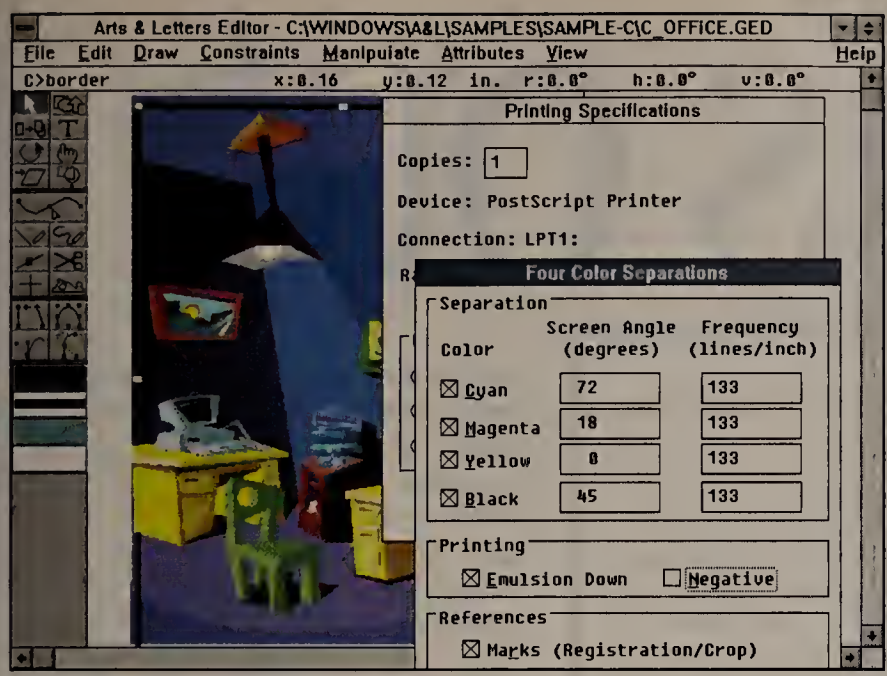
VENTURA PUBLISHER GOLD SERIES FOR WINDOWS

This long-document desktop publishing champ doesn't boast great new features—just a great new interface. The sidebar is gone, replaced by pulldown menus and movable tag, file, and toolbox windows. Better yet, thanks to *Windows 3.0,* you'll never run out of memory for those huge publications again.

DESKTOP PUBLISHING AND FONTS

Ventura Software, Inc.
List price: $895
Scheduled release: third quarter 1990
Reader service no. 665

For more information about all products in this section, circle reader service no. 905.



Arts & Letters Graphics Editor 3.0

Arts & Letters Graphics Editor combines sophisticated drawing tools for design pros with more than 5000 images for the faint of art. Version 3.0 adds a powerful graphics-file converter, support for 24-bit color, and, as this screen shows, the ability to create process and spot-color separations for output on typesetters.

DRAW/PAINT

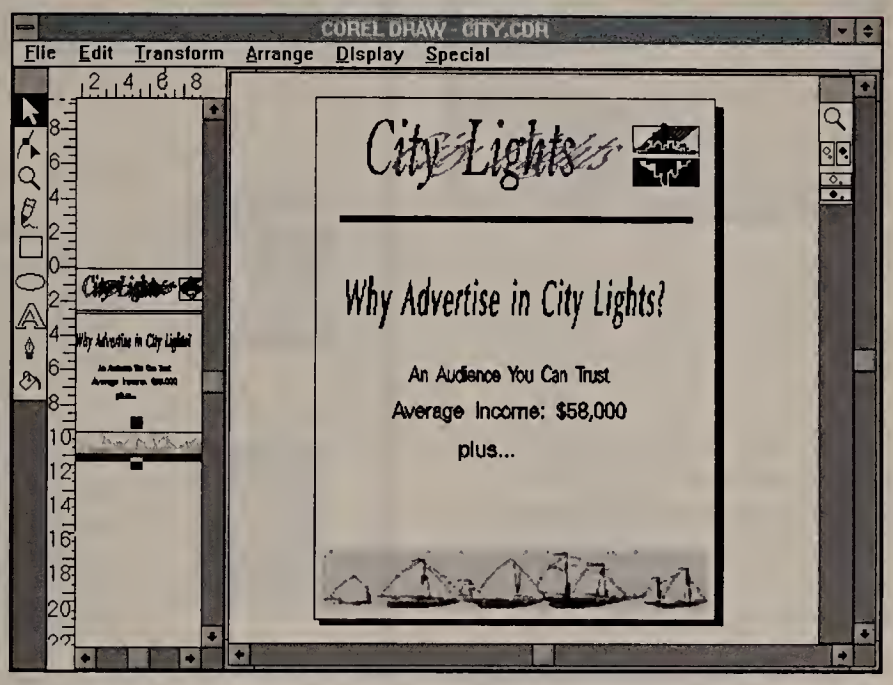
Computer Support Corp.
15926 Midway Rd.
Dallas, TX 75244
214/661-8960,
214/661-5429 (fax)
List price: $695
Reader service no. 632

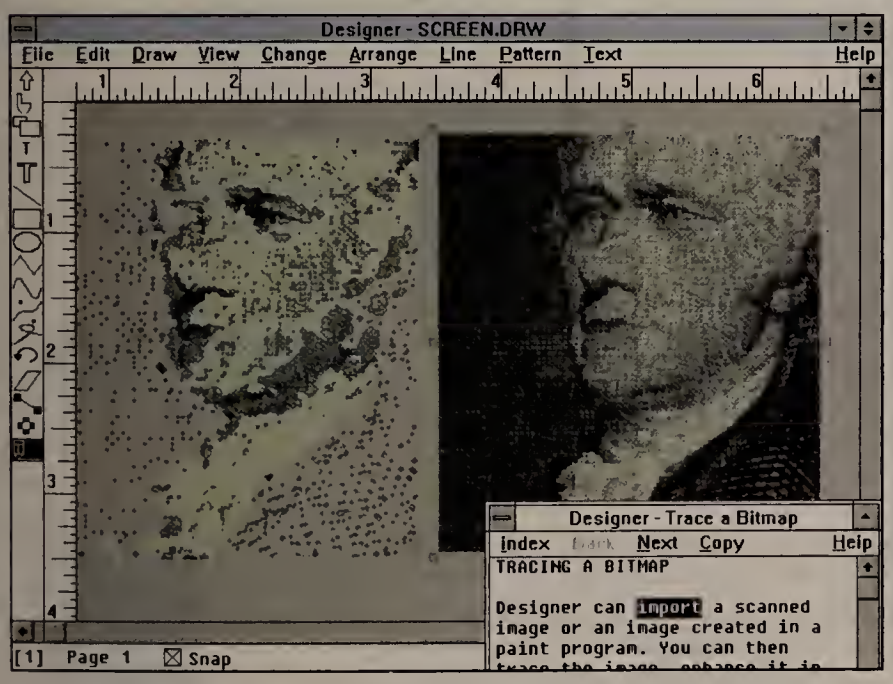
Corel Draw 1.2

DRAW/PAINT

Corel Systems Corp.
1600 Carling Ave.
Ottawa, Ontario
K1Z 8R7 Canada
613/728-8200,
613/728-9790 (fax)
List price: $595
Reader service no. 636

Corel's popular draw package retains features such as powerful text skewing, rotation, kerning, and other effects; Bézier curves; over 50 printer and screen fonts; and hundreds of quality clip-art images. This version adds a trace program that turns PCX and TIFF images into vector graphics. The program not only converts Bitstream and Adobe fonts for its use but also generates fonts for *Ventura Publisher* and Z-Soft's *Type Foundry*.





Designer 3.01

Designer 3.01 has all the drawing, layering, and image management tools of its predecessor—plus a slick "trace" feature that turns color PCX and TIFF bit maps into fast, editable vector graphics. In this screen, the scanned image of Alexander Hamilton on the right was transformed into the graphic on the left, which can now be enhanced with color and shading. Other hot additions: 1700 clip-art images, a Bézier curve tool, support for Bitstream fonts, and more.

DRAW/PAINT

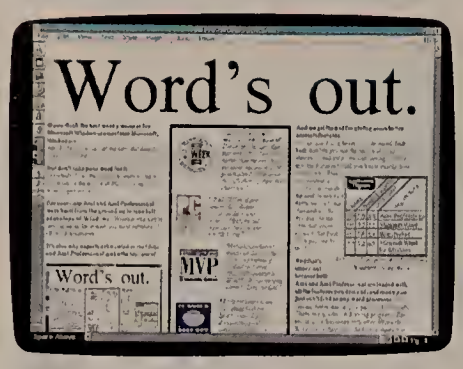
Micrografx Inc.
List price: $695
Reader service no. 640

For more information about all products in this section, circle reader service no. 906.

Word's out.

If you think the best word processor for Microsoft Windows comes from Microsoft, think again.
Amí Professional has set the new standard for word processing.

But don't take our word for it.
Everybody from the corporate users polled by PC Week to the editors of PC World and Software Digest says so.



They may look like desktop publishers, but Amí and Amí Professional are what word processing should have been all along. Amí is yours for just $199, Amí Professional for $495.

Because only Amí and Amí Professional were built from the ground up to take full advantage of Windows. Which is why they're recognized as the easiest and most intuitive of all word processors.

It's also why experts acknowledge that Amí and Amí Professional make the best use of Windows' WYSIWYG environment. Instead of relying on archaic "page previews" like Word for Windows, Amí lets you create, see, and edit all elements of your document — text, graphics, even footnotes, headers and footers — in a variety of fully editable views.

Graphics are easier to handle, too. Because Amí "frames" (which can also contain text for page-within-page formats) are true "pick up and place" objects that can be quickly and accurately positioned and sized on screen.

CORPORATE TOP RATED PC WEEK 1990 SATISFACTION POLL

PC Week Poll of Corporate Satisfaction

- Amí Professional received a score in Ease of Use of the User Interface that was fully 10 points higher than the next highest score, and came in 14 points ahead of the score WordPerfect 5.1 drew from its buyers.

PC MAGAZINE EDITORS' CHOICE July 1990 Ami Professional Version 1.1B

PC Magazine Editor's Choice

- Of all GUI word processors, Amí Professional has the widest variety of features and is perhaps the most enjoyable to use.

PC Computing MVP MOST VALUABLE PRODUCT

PC Computing MVP

- A stunning achievement, one that no other PC word processing product— not even Microsoft's estimable Word for Windows — can claim to have reached.

PC WORLD BEST BUY May, 1990

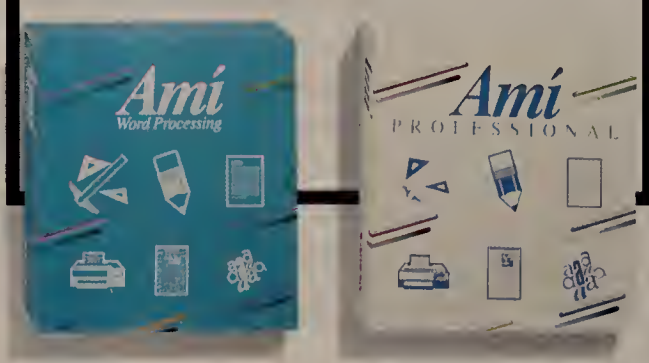
PC World Best Buy

- Amí Pro's easy to use formatting tools are hard to resist. If your documents typically include graphics, it's your Best Buy.

INFO WORLD EXCELLENT VALUE Jan. 29, 1990

Infoworld Excellent Value

- Easily handles graphics mixed with text, imports a host of text and graphics formats effortlessly, and does other office chores such as mail merge with ease and power.



And we get the nod for giving users better access to features. Our unique dialog boxes provide visual feedback that lets you see the results of your choices immediately, without having to reformat the document until you know exactly how it will look. Plus, our shortcut icons — which eliminate the need to use pull down menus — are changeable. So you can use the ones that correspond to the functions you use the most.

Software Digest Rating	Overall Evaluation	Overall Power	Program Name
★★★	7.9	6.9	Amí Professional
★★★	7.7	7.7	Microsoft Word
★★★	7.6	8.1	Word Perfect
★★★	7.2	6.7	Microsoft Word for Windows

Software Digest rates Amí Professional as the best word processor for Windows and the best word processor overall.

And that's important because both Amí and Amí Professional are loaded with all the features you demand, and many you just can't find in any word processor. Including tables that let you perform basic math. Charts and graphs. A drawing program. Dynamic Data Exchange with other Microsoft Windows applications. And style sheets that make it easy to create sophisticated-looking documents — like this ad!

So whether you're an executive type who types only occasionally, or a heavy user who needs lots of specialized features, one of these programs is definitely your type. Even the experts agree.

When it comes to word processing, Amí is the first and last word.

Call 1-800-831-9679 to order your full feature demonstration version for just $ 9.95.

SAMNA WORD PROCESSING

MICROSOFT WINDOWS Versus 10 Companies Product

Requires IBM AT, PS/2 or compatible (80286 or better CPU); CGA, EGA, VGA or Hercules compatible displays; MS-DOS 3.0 or higher. A free runtime version of Microsoft Windows 2.11 is available to all purchasers of Amí and Amí Professional.

The Demonstration Version of Amí Professional is a fully functional version of the product, except for the thesaurus, some import/export filters, and the ability to save files. The demonstration version requires Windows 2.11 or Windows 3.0.

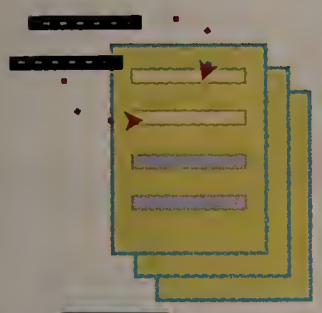
Ami is a registered trademark of Samna Corporation. All other trademarks and copyrights are acknowledged.

HP NewWave Aware

Circle 338 on reader service card

SPECIAL REPORT

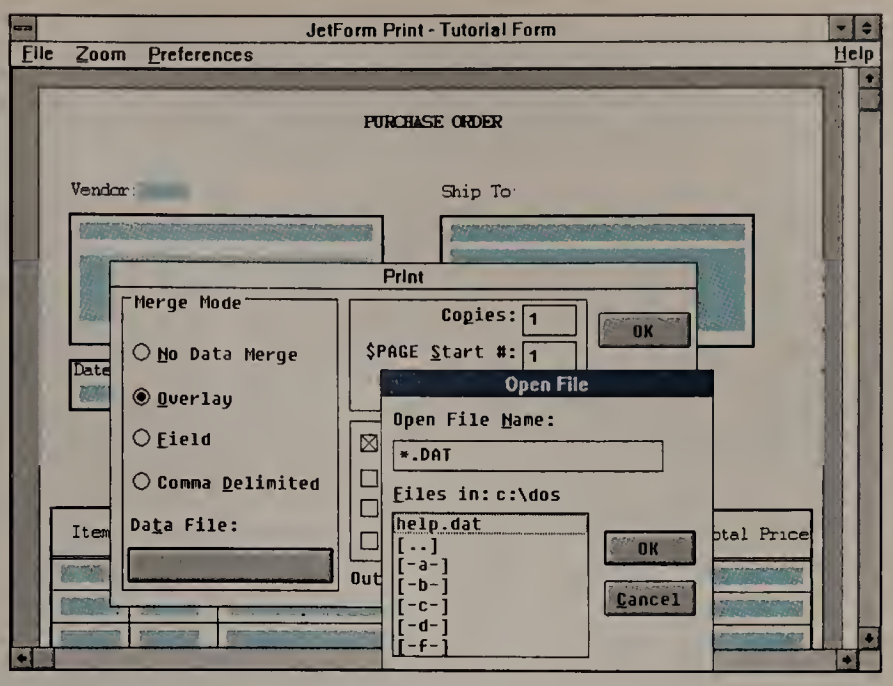
JETFORM-DESIGN 2.2

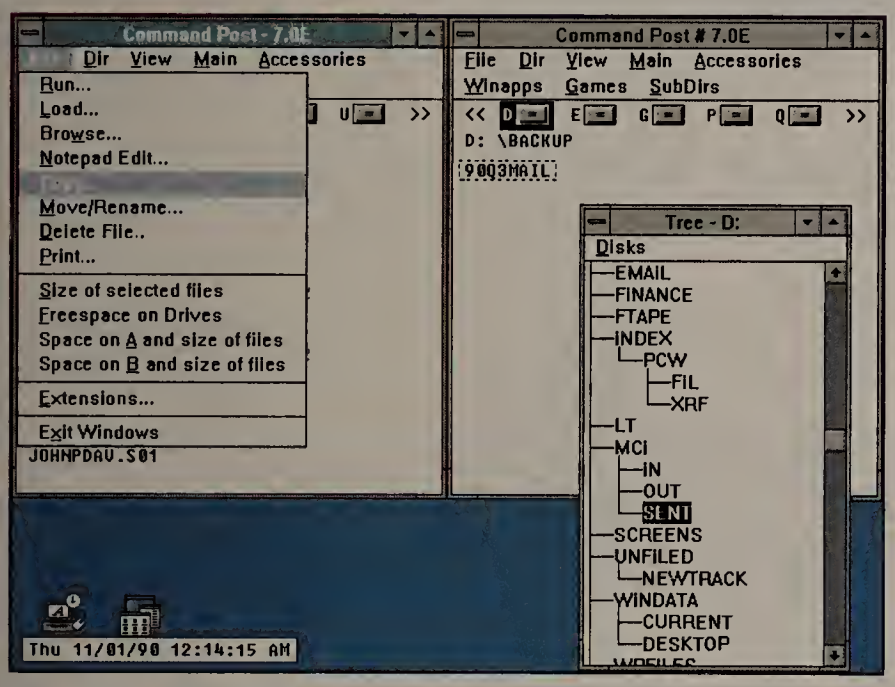


FORMS

Indigo Software, Inc.
2421 Production Dr.
#102
Indianapolis, IN 46241
800/267-9976,
317/243-3939 (fax)
List price: $495
Reader service no. 650

JetForm-Design 2.2 combines sophisticated forms design with powerful data-merge capabilities. You can create forms from scratch and fill them in on screen—or automatically pull in *dBASE* or ASCII data at print time. Its desktop publishing–style design tools include support for scalable fonts and rotated text on PostScript and LaserJet III printers.





COMMAND POST 7.0

Wilson WindowWare's *Command Post* offers a serviceable replacement for the clunky File Manager. With the help of a built-in menu language, *Command Post* allows the user to create sophisticated custom menus, complete with messages, dialog boxes, and scrolling lists.

FRONT ENDS

Wilson WindowWare
2701 California Ave.
SW #212
Seattle, WA 98116
800/762-8383,
206/937-9335,
206/935-7129 (fax)
List price: $49.95
Reader service no. 635

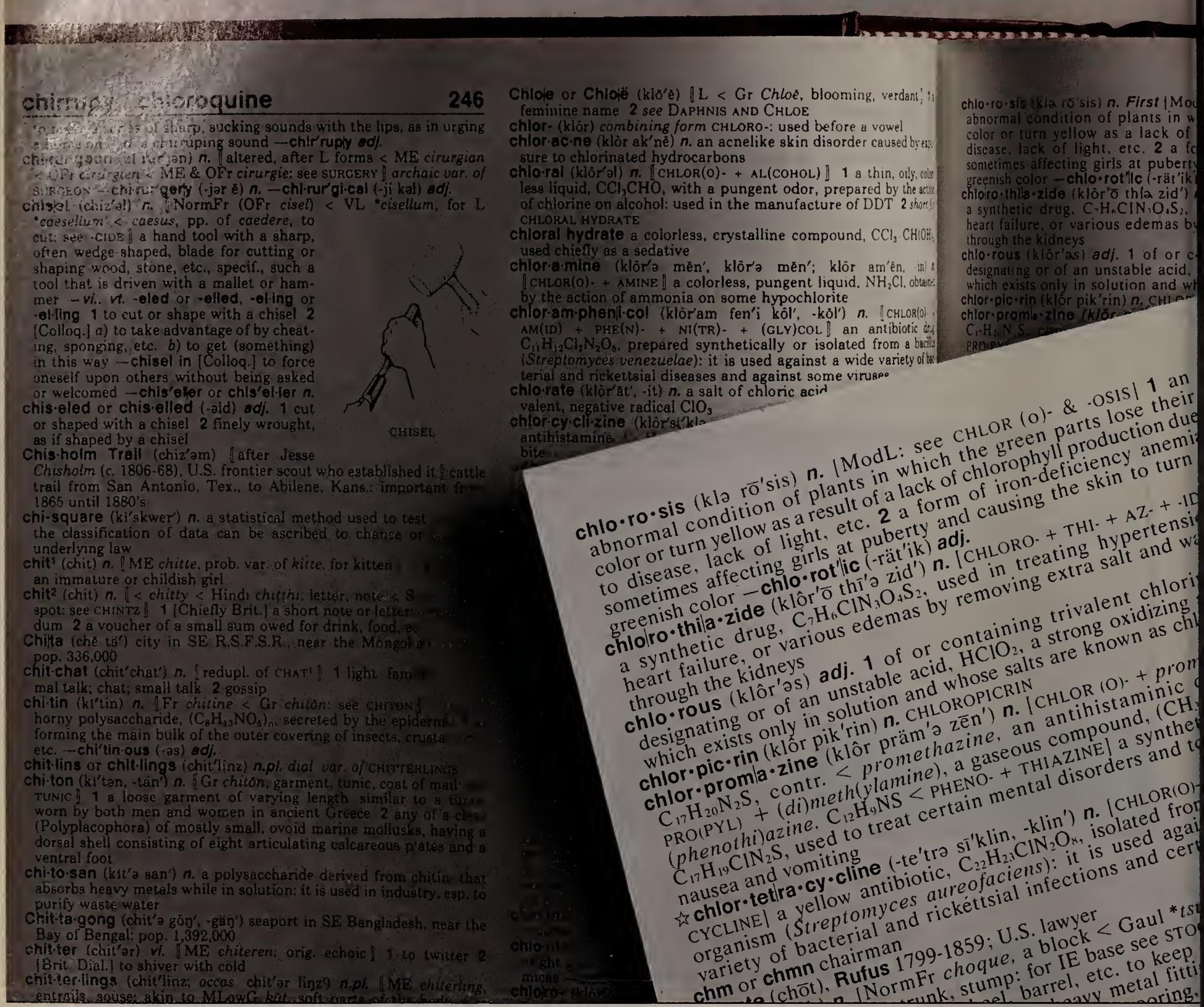
FRONT ENDS

Hewlett-Packard
19310 Pruneridge Ave.
Cupertino, CA 95014
800/752-0900
List price: $195
Reader service no. 654

NEWWAVE 3.0

NewWave 3.0 is an object-oriented extension of the *Windows* environment. With it you can create "compound" documents by dragging icons representing spreadsheet, data base, and other data into a file. Then you can alter the data without leaving the document. Along with seamless integration, *NewWave* gives you this Mac-like desktop, complete with folders for programs and objects (programs plus data). *NewWave* also sports a super macro processor that can retrieve data, chart it, plug it into a document, and electronically mail it.

With HP's enhanced OCR capabilities,



chirrupy ... chloroquine 246

... of sharp, sucking sounds with the lips, as in urging a horse on; a chirruping sound —**chir'rupy** *adj.*

chirurgeon (kir'jən) *n.* [altered, after L forms < ME *cirurgian* < OFr *cirurgien* < ME & OFr *cirurgie*: see SURGERY] *archaic var. of* SURGEON —**chi·rur'gery** (-jər ē) *n.* —**chi·rur'gi·cal** (-ji kəl) *adj.*

chisel (chiz'əl) *n.* [NormFr (OFr *cisel*) < VL **cisellum*, for L **caesellum* < *caesus*, pp. of *caedere*, to cut; see -CIDE] a hand tool with a sharp, often wedge-shaped, blade for cutting or shaping wood, stone, etc., specif., such a tool that is driven with a mallet or hammer —*vi.*, *vt.* **-eled** or **-elled**, **-el·ing** or **-el·ling** 1 to cut or shape with a chisel 2 [Colloq.] *a*) to take advantage of by cheating, sponging, etc. *b*) to get (something) in this way —**chisel in** [Colloq.] to force oneself upon others without being asked or welcomed —**chis'eler** or **chis'el·ler** *n.*

CHISEL

chis·eled or **chis·elled** (-əld) *adj.* 1 cut or shaped with a chisel 2 finely wrought, as if shaped by a chisel

Chis·holm Trail (chiz'əm) [after Jesse *Chisholm* (c. 1806-68), U.S. frontier scout who established it] cattle trail from San Antonio, Tex., to Abilene, Kans.: important fr 1865 until 1880's

chi-square (ki'skwer') *n.* a statistical method used to test the classification of data can be ascribed to chance or underlying law

chit[1] (chit) *n.* [ME *chitte*, prob. var. of *kitte*, for kitten] an immature or childish girl

chit[2] (chit) *n.* [< *chitty* < Hindi *chitthi*, letter, note < S spot; see CHINTZ] 1 [Chiefly Brit.] a short note or letter dum 2 a voucher of a small sum owed for drink, food, e

Chita (chē tä') city in SE R.S.F.S.R., near the Mongol a pop. 336,000

chit·chat (chit'chat') *n.* [redupl. of CHAT[1]] 1 light fam mal talk; chat; small talk 2 gossip

chi·tin (ki'tin) *n.* [Fr *chitine* < Gr *chitōn*; see CHITON] horny polysaccharide, $(C_8H_{13}NO_5)_n$, secreted by the epiderm forming the main bulk of the outer covering of insects, crusta etc. —**chi'tin·ous** (-əs) *adj.*

chit·lins or **chit·lings** (chit'linz) *n.pl. dial var. of* CHITTERLINGS

chi·ton (ki'tən, -tän') *n.* [Gr *chitōn*, garment, tunic, coat of mail TUNIC] 1 a loose garment of varying length similar to a tun worn by both men and women in ancient Greece 2 any of a clas (Polyplacophora) of mostly small, ovoid marine mollusks, having a dorsal shell consisting of eight articulating calcareous plates and a ventral foot

chi·to·san (kīt'ə san') *n.* a polysaccharide derived from chitin that absorbs heavy metals while in solution; it is used in industry, esp. to purify waste water

Chit·ta·gong (chit'ə gôŋ', -gäŋ') seaport in SE Bangladesh, near the Bay of Bengal: pop. 1,392,000

chit·ter (chit'ər) *vi.* [ME *chiteren*; orig. echoic] 1 to twitter 2 [Brit. Dial.] to shiver with cold

chit·ter·lings (chit'linz; *occas* chit'ər linz') *n.pl.* [ME *chiterling*, entrails, souse; akin to MLowG *kütt*, soft parts of the body]

Chloe or **Chloë** (klō'ē) [L < Gr *Chloē*, blooming, verdant] 1 feminine name 2 *see* DAPHNIS AND CHLOE

chlor- (klôr) *combining form* CHLORO-: used before a vowel

chlor·ac·ne (klôr ak'nē) *n.* an acnelike skin disorder caused by exposure to chlorinated hydrocarbons

chlo·ral (klôr'əl) *n.* [CHLOR(O)- + AL(COHOL)] 1 a thin, oily, colorless liquid, CCl_3CHO, with a pungent odor, prepared by the action of chlorine on alcohol: used in the manufacture of DDT 2 *short for* CHLORAL HYDRATE

chloral hydrate a colorless, crystalline compound, $CCl_3 \cdot CH(OH)_2$, used chiefly as a sedative

chlor·a·mine (klôr'ə mēn', klôr'ə mēn'; klôr am'ēn, -in) [CHLOR(O)- + AMINE] a colorless, pungent liquid, NH_2Cl, obtained by the action of ammonia on some hypochlorite

chlor·am·phen·i·col (klôr'am fen'i kôl', -kōl') *n.* [CHLOR(O)- + AM(ID) + PHE(N)- + NI(TR)- + (GLY)COL] an antibiotic drug, $C_{11}H_{12}Cl_2N_2O_5$, prepared synthetically or isolated from a bacillus (*Streptomyces venezuelae*): it is used against a wide variety of bacterial and rickettsial diseases and against some viruses

chlo·rate (klôr'āt', -it) *n.* a salt of chloric acid valent, negative radical ClO_3

chlor·cy·cli·zine (klôr'si'kli antihistamine bite

chlo·ro·sis (klə rō'sis) *n.* [ModL: see CHLOR(O)- & -OSIS] 1 an abnormal condition of plants in which the green parts lose their color or turn yellow as a result of a lack of chlorophyll production due to disease, lack of light, etc. 2 a form of iron-deficiency anemia sometimes affecting girls at puberty and causing the skin to turn greenish color —**chlo·rot'ic** (-rät'ik) *adj.*

chlo·ro·thi·a·zide (klôr'ō thī'ə zid') *n.* [CHLORO- + THI- + AZ- + -ID a synthetic drug, $C_7H_6ClN_3O_4S_2$, used in treating hypertensi heart failure, or various edemas by removing extra salt and wa through the kidneys

chlo·rous (klôr'əs) *adj.* 1 of or containing trivalent chlori designating or of an unstable acid, $HClO_2$, a strong oxidizing which exists only in solution and whose salts are known as chl

chlor·pic·rin (klôr pik'rin) *n.* CHLOROPICRIN

chlor·prom·a·zine (klôr präm'ə zēn') *n.* [CHLOR(O)- + *prom* $C_{17}H_{20}N_2S$, contr. < *promethazine*, an antihistaminic PRO(PYL) + (*di*)*meth*(*ylamine*), a gaseous compound, (CH (*phenothi*)*azine*, $C_{12}H_9NS$ < PHENO- + THIAZINE] a synthet $C_{17}H_{19}ClN_2S$, used to treat certain mental disorders and to nausea and vomiting

☆**chlor·tet·ra·cy·cline** (-te'trə sī'klin, -klin') *n.* [CHLOR(O)- CYCLINE] a yellow antibiotic, $C_{22}H_{23}ClN_2O_8$, isolated fro organism (*Streptomyces aureofaciens*): it is used agai variety of bacterial and rickettsial infections and cert

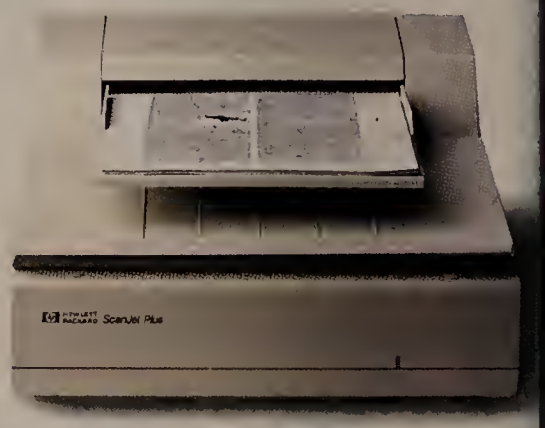
chm or **chmn** chairman

Choque (chōt), **Rufus** 1799-1859; U.S. lawyer

choque (chōt) *n.* [NormFr *choque*, a block < Gaul **tsu* trunk, stump; for IE base see STO barrel, etc. to keep heavy metal fitti ...oring,

Now you can take a page of this. A paragraph of that. Combine them with a few images. And quickly come up with one very impressive document. The HP ScanJet Plus scanner can read everything from a magazine article to a balance sheet. Then it stays on the job so you can easily fine-tune, or make major changes to, everything you've scanned.

The affordable, 8-bit ScanJet Plus is supported by a wide variety of third-party OCR and graphics software packages. HP's optional



t's easy to make chocolate moose.

text scanning software, AccuScan, simplifies the scanning process by recognizing the layout of even the most complicated material. Including multi-column pages and numerical tables. AccuScan automatically separates text from graphics, making it easy for you to pick and choose the information you want. An optional twenty-page automatic document feeder makes you even more efficient.

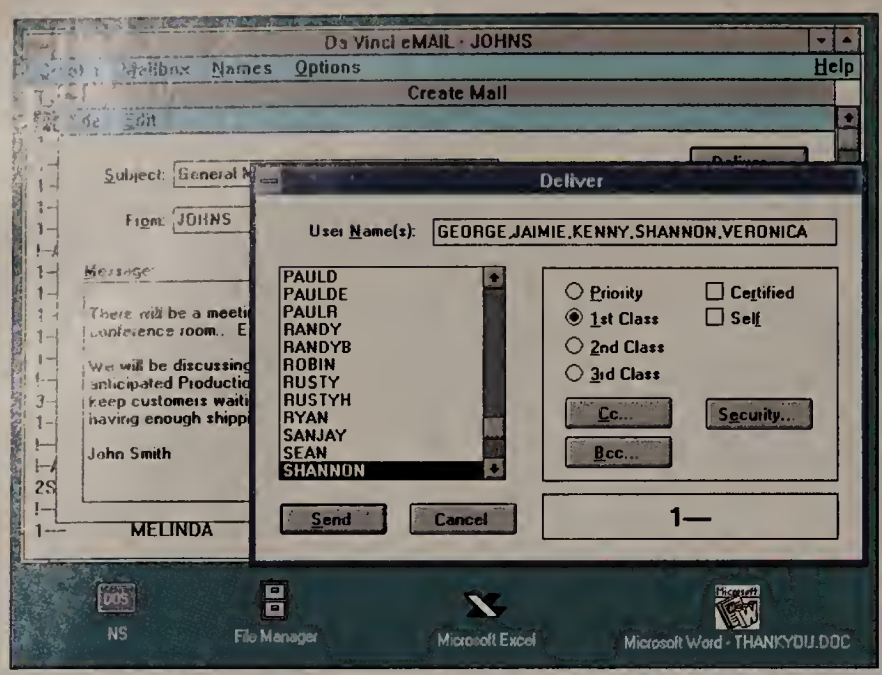
The ScanJet Plus gives you a head start. With one-button automatic text scanning. Live preview for instant feedback on image quality. And auto exposure, which works like a point and shoot camera. To make things even easier, it features on-line help.

HP has added all these impressive capabilities to a scanner known for its superior image scanning. The ScanJet Plus reads 256 levels of gray for smooth shading and more realistic graphics.

At only $2,190* the ScanJet Plus makes perfect sense for any business interested in being more productive. And more professional. For more information and the name of your nearest authorized HP dealer, call **1-800-752-0900, Ext. 1666.** And even if you never make chocolate moose, you'll have a recipe for success.

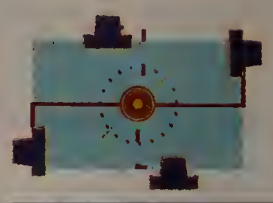
HEWLETT PACKARD

*Suggested U.S. list price without document feeder. © 1990 Hewlett-Packard Company PE12036



DA VINCI EMAIL FOR WINDOWS 1.70

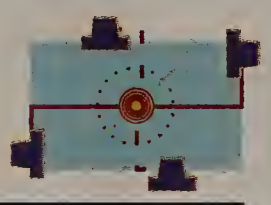
The bottom line for LAN E-mail is ease of use—and *Da Vinci eMail* qualifies. Press the hot key, jot a message in the pop-up window, address it, attach any DOS file, and send the note on its way. Like DOS E-mail heavyweights, *Da Vinci* offers password security, blind carbon copies, receipt and priority mail, and Novell's MHS messaging. DDE support is also included.



NETWORK APPLICATIONS

Da Vinci Systems Corp.
P.O. Box 17449
Raleigh, NC 27619
800/326-3556,
919/881-4320,
919/787-3550 (fax)
List price: single user $150, 2–8 users $445, 9–100 users $1145
Reader service no. 639

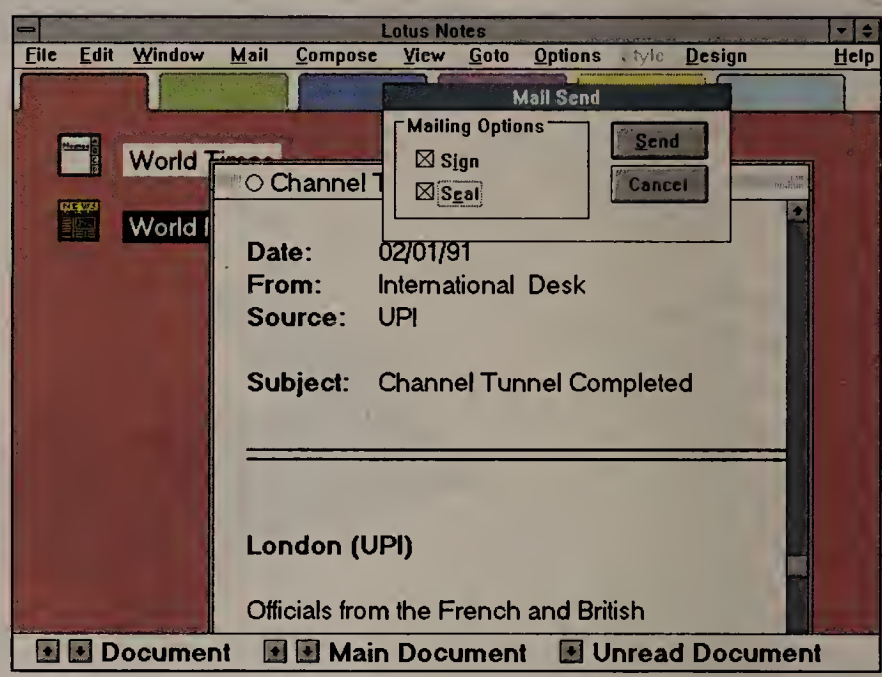
LOTUS NOTES 1.1

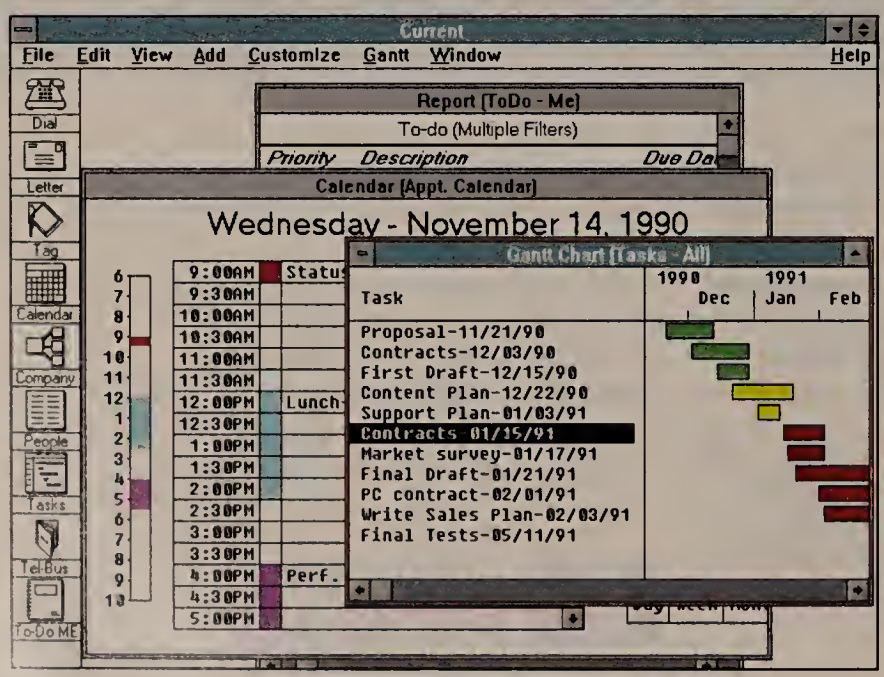


NETWORK APPLICATIONS

Lotus Development Corp.
55 Cambridge Pkwy.
Cambridge, MA 02142
800/327-6148,
617/577-8500 ext. 1138
List price: $62,500 (200 licenses), $295 each additional license
Reader service no. 652

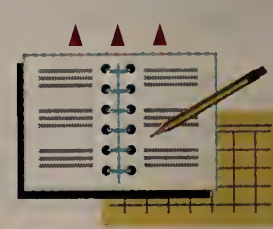
Notes goes beyond LAN E-mail—it's an integrated system that lets networked users compose documents, create font-filled forms, sort and track documents in numerous ways, set up on-line conferences, and more. Given its price and aim, it's a good fit for large companies, such as a news organization that needs to create, file, and track stories.





IBM CURRENT 1.1

With *IBM Current*, the watchword is *flexibility*. A menu-driven utility lets users assemble a collection of data bases to match specific information needs, establish links among them, and view the contents as Gantt charts, calendars, phone books, lists, or custom reports. The new version also has DDE support, cut-and-paste functions, and twice the data base capacity.



PERSONAL INFORMATION MANAGERS

IBM Desktop Software
472 Wheelers Farms Rd.
Milford, CT 06460
800/426-7699
List price: $395
Reader service no. 638

GUESS WHICH MANAGER HAS CHARISMA

What's most important about a business presentation is how good you look after everybody else has finished. No matter what you know, it's how well you've communicated that usually determines your success. That's why you need Charisma.

Charisma is a complete graphics program for business, combining text charts, graphs, and drawing tools in one powerful package. Switch to Charisma and you can stop switching back and forth between all the other programs to get what you need. Now it's all at your fingertips.

The time and energy you save can be used to refine your presentation. And think of the time your work group will save by only having to be proficient with a single easy-to-learn graphics program.

Another clear advantage is Charisma's compatibility with Windows 3.0 which conveniently pops hundreds of options on the screen for rapid experimentation. Browse through chart types, clip art, 42 outline typefaces, perspective chart effects, colors, gradients, chart templates, and free form layouts, to name a few.

Charisma also includes drawing tools that will help the beginner and offer the power user maximum control. So finding the combination that gives your presentation the right snap will be quick and easy.

Charisma can import many other graphic and spreadsheet formats, but more importantly, imported text, charts, and graphics arrive as data and can be further manipulated and incorporated.

When boundaries disappear creativity flourishes. The usual can be made unusual. Communication becomes forceful and unique. Charisma turns drudgery into innovation.

Make your next presentation a memorable performance. Ask for Charisma at your local software dealer or through your corporate purchasing department.

Or call MICROGRAFX directly at 1-800-733-3729, ext. 3250 (USA) or 3710 (Canada) for our special free offer of a self-running demo (supplies limited).

MICROGRAFX™
CHARISMA

THE LEADER IN WINDOWS 3.0 GRAPHICS

Micrografx, Inc. 1303 Arapaho, Richardson, TX 75081 - (214)234-1769 (customers outside of North America please dial extension 3710). Micrografx has offices in - Los Angeles, Paris, London, Munich, and Copenhagen.
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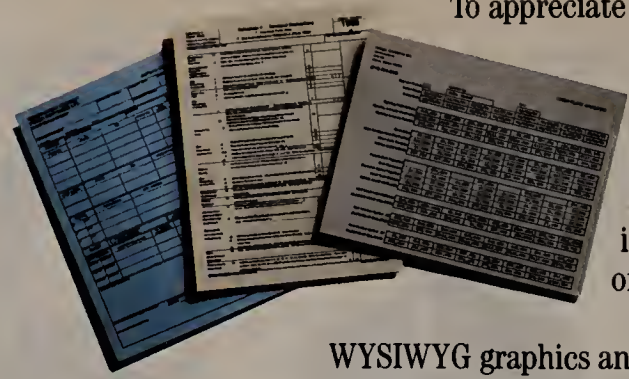
Circle 165 on reader service card

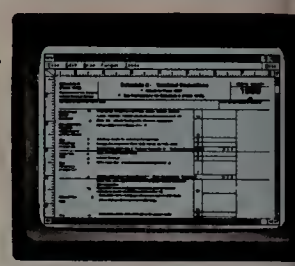
WE'D LIKE TO SUGGEST A FEW NEW CRITERIA FOR CHOOSING FORMS SOFTWARE.



To appreciate the benefits of JetForm™ software, we invite you to first examine the subject of business forms themselves. And why every business has so many.

It's because forms are the proven way to gather information. Communicate it. Store it, and process it. Which is precisely the point of view from which JetForm was developed.

Naturally, JetForm gives you complete WYSIWYG graphics and font control, using the industry standard Microsoft® Windows interface.



But we also give you something else. And that's a set of capabilities that turns forms software from a handy way to replace pre-printed forms into a powerful way to run a business.

Which is why you'll find JetForm prints faster on the laser printers that businesses use most.

And connects more effectively to networks. So both forms and the information they contain can be better shared and communicated – across departments, or entire organizations. And not just with IBM® PCs, but with HP®3000s, HP9000s, DEC® VAXs™ and UNIX® machines.

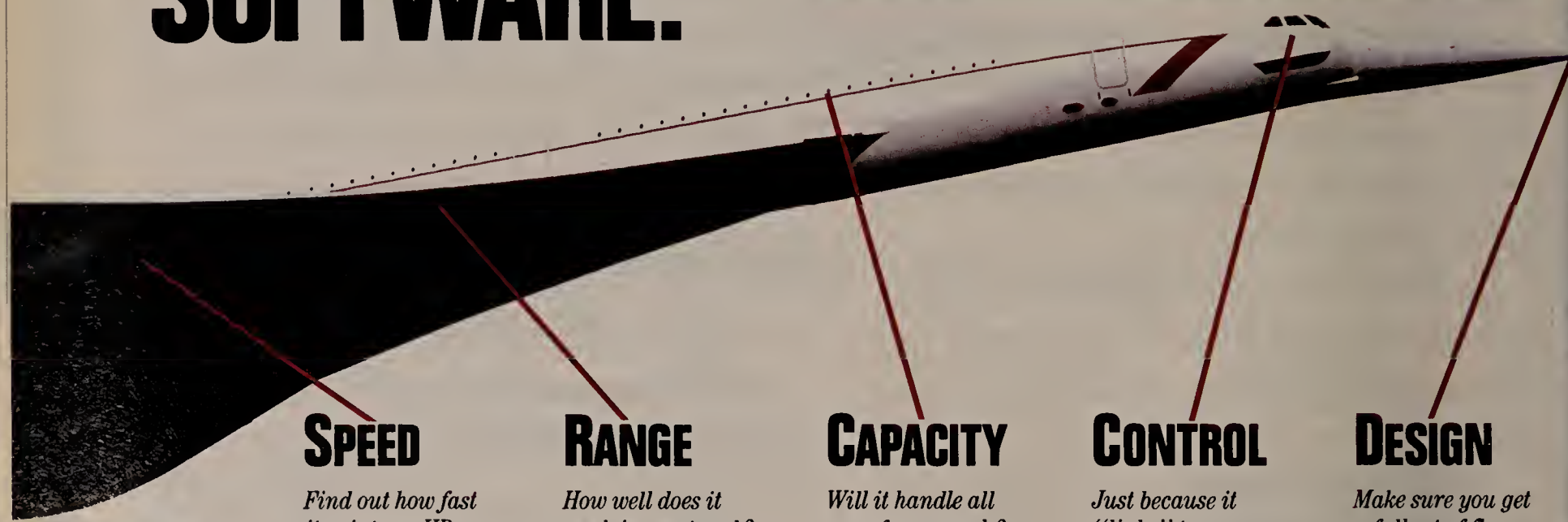
Combined with our optional JetForm-Merge and JetForm-Server software, JetForm makes it possible to completely automate and streamline the entire information management process. From design and forms completion, to printing and integration with your existing dBASE® files.

As years pass, other software makers may discover the true purpose of business forms, and upgrade their products to the capabilities of JetForm. But JetForm has them today. And a new business day starts tomorrow.

Call 800-267-9976 for complete information on the full family of JetForm forms software.

JetForm

THEY'RE MORE THAN JUST FORMS. THEY'RE YOUR BUSINESS.



SPEED

Find out how fast it prints on HP LaserJet® printers, and the new IBM LaserPrinter 4019. You'll find JetForm is three times faster than others.

RANGE

How well does it work in a network? Sending forms around the office is one thing. Managing information throughout your organization, across multiple platforms, is quite another.

CAPACITY

Will it handle all your forms needs? Including complex policies and contracts, as well as bar code labels? Will it handle them in the volume you'll need as your forms applications grow?

CONTROL

Just because it "links" to your database doesn't mean it takes full advantage of database links. JetForm verifies data, performs calculations, and fully reads and writes dBASE files.

DESIGN

Make sure you get a full set of flexible, easy to use, WYSIWYG design tools tailored to forms design. After all, this isn't desktop publishing. It's information management.

MICROSOFT WINDOWS

See Us At Comdex, Booth #H7033

Call (800) 267-9976 (US only) or (613) 594-3026. Indigo Software Ltd., 560 Rochester Street, Suite 400, Ottawa, Canada K1S 5K2

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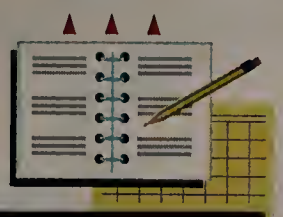
Circle 97 on reader service card

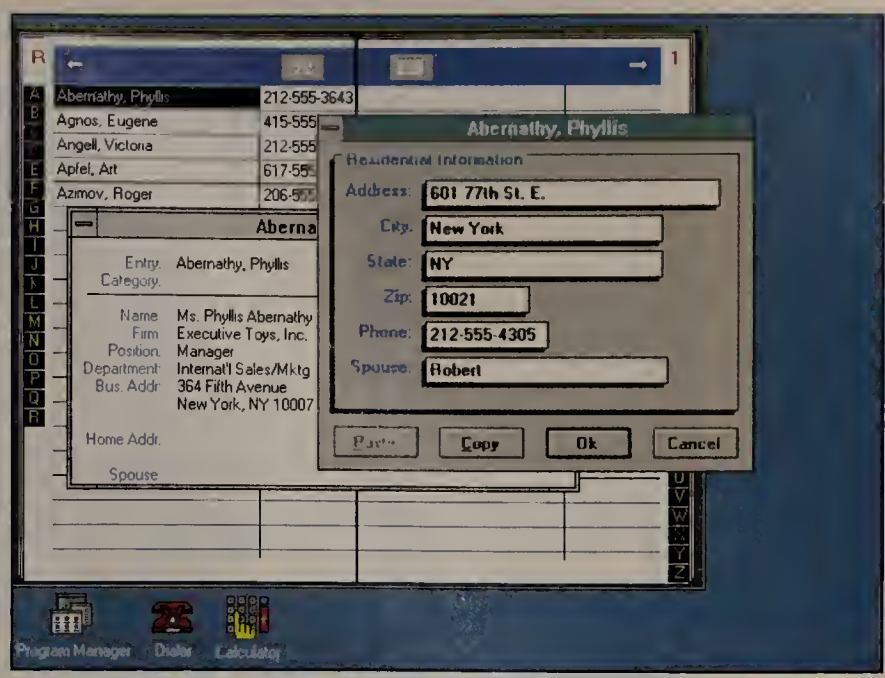
DESKTOP SET 3.0

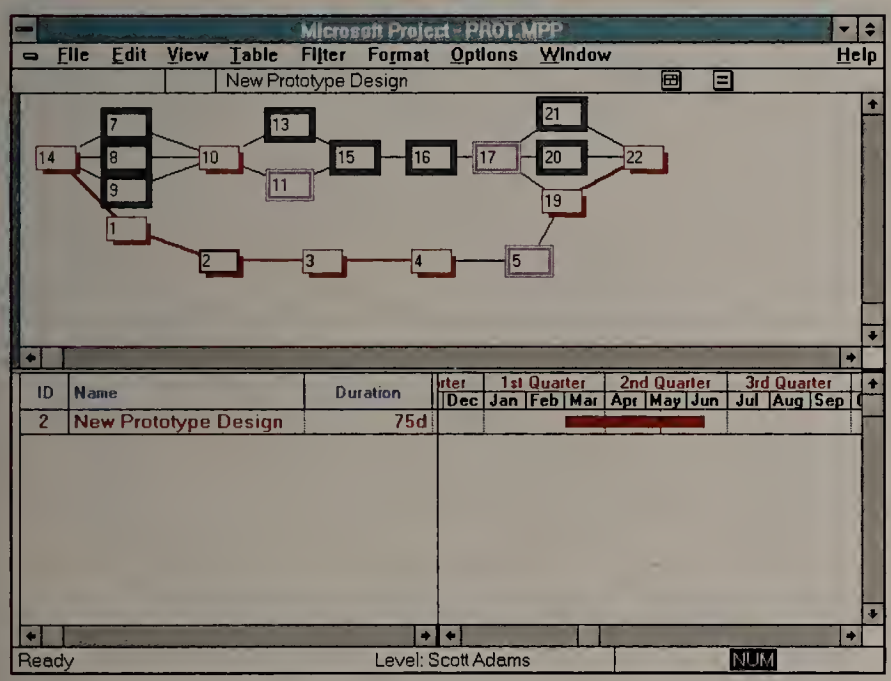


PERSONAL INFORMATION MANAGERS

The Phone Book module in Okna's *DeskTop Set* may be the most complete Rolodex-dialer combo ever, with hot links to the Calendar and Note modules. Run in Expert mode, the program sheds *Windows'* menus and borders.

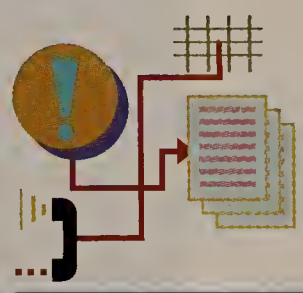
Okna Corp.
285 Van Buren St.
P.O. Box 522
Lyndhurst, NJ 07071
201/460-0677,
201/507-8725
List price: $149
Reader service no. 641





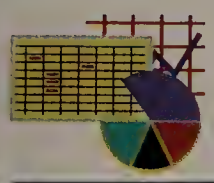
MICROSOFT PROJECT FOR WINDOWS 1.0

Project management involves looking at an elephant from a variety of angles. With its crisp graphics and simultaneous multiple views, *Microsoft Project for Windows* is a natural for this task, whether you're launching a product or setting up a branch office. This screen shows two views of the same project: a network diagram on top for the conceptual overview, and a detailed Gantt chart below of a single task. With *Project*, you can also modify graphics directly to play out what-if scenarios.



PROJECT MANAGEMENT

Microsoft Corp.
List price: $695; $595 per LAN user
Reader service no. 658

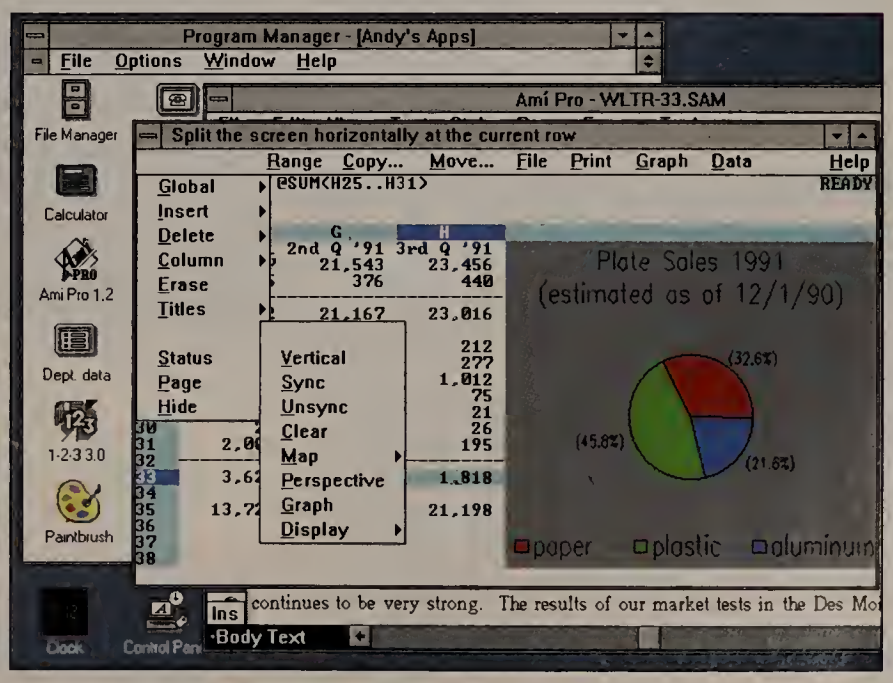


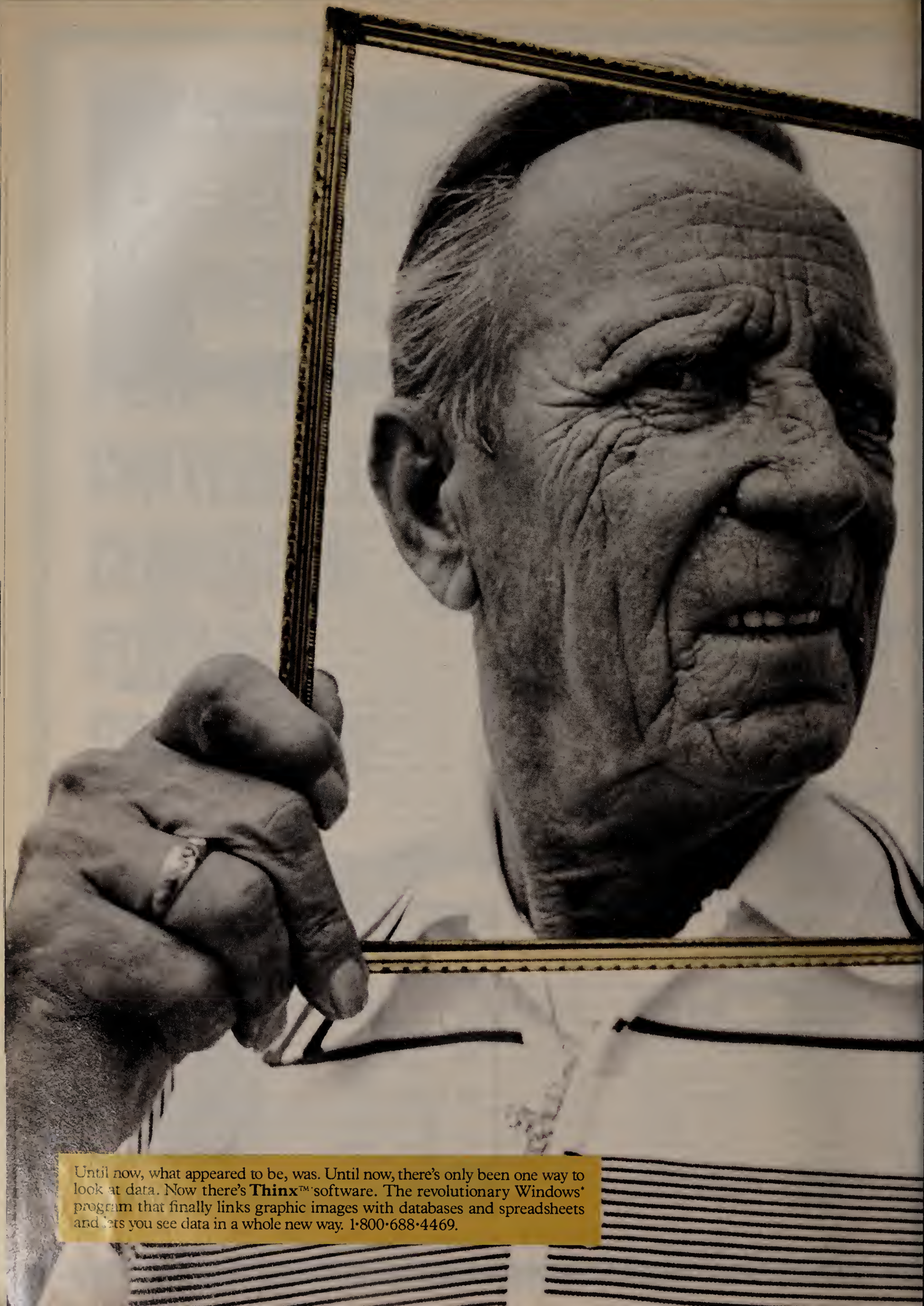
SPREADSHEETS

Iris Associates, Inc.
P.O. Box 735
Westford, MA 01886
800/225-5800
List price: $99.95
Reader service no. 662

3-FOR-3

If you're heavily committed to *Windows 3.0* and *1-2-3* release 3, check out *3-for-3*. This utility runs release 3 in a resizable window and adds pulldown menus and full mouse, printer, clipboard, and DDE support. Note: You don't get true font or graphics display or *Impress*-style output improvements, and you can't select ranges with the mouse.




Until now, what appeared to be, was. Until now, there's only been one way to look at data. Now there's **Thinx**™ software. The revolutionary Windows* program that finally links graphic images with databases and spreadsheets and lets you see data in a whole new way. 1·800·688·4469.

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We're More Than Just Talk.®
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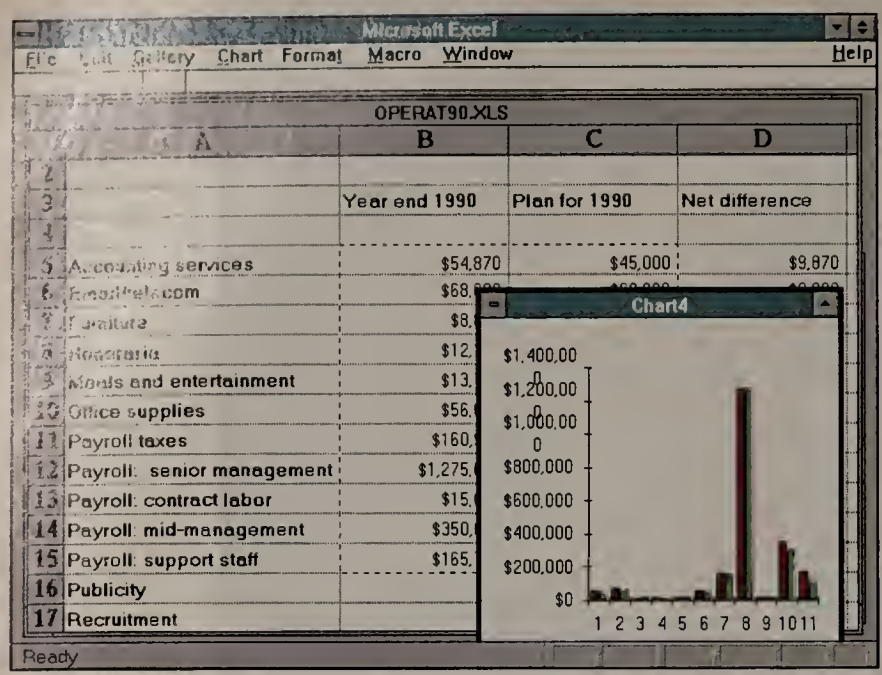
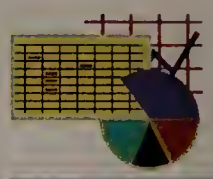


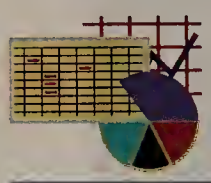
MICROSOFT EXCEL 2.1D



SPREADSHEETS

Microsoft Excel 2.1D is simply great old wine in a new bottle. The feature set remains the same—point-and-click worksheet manipulation, powerful built-in functions, easy font selection, and quick graphics output—but the program now runs under *Windows 3.0*. The rumored *Excel 3.0* may give *1-2-3/G* and *Quattro Pro* a run for their money.

Microsoft Corp.
List price: $495
Reader service no. 645



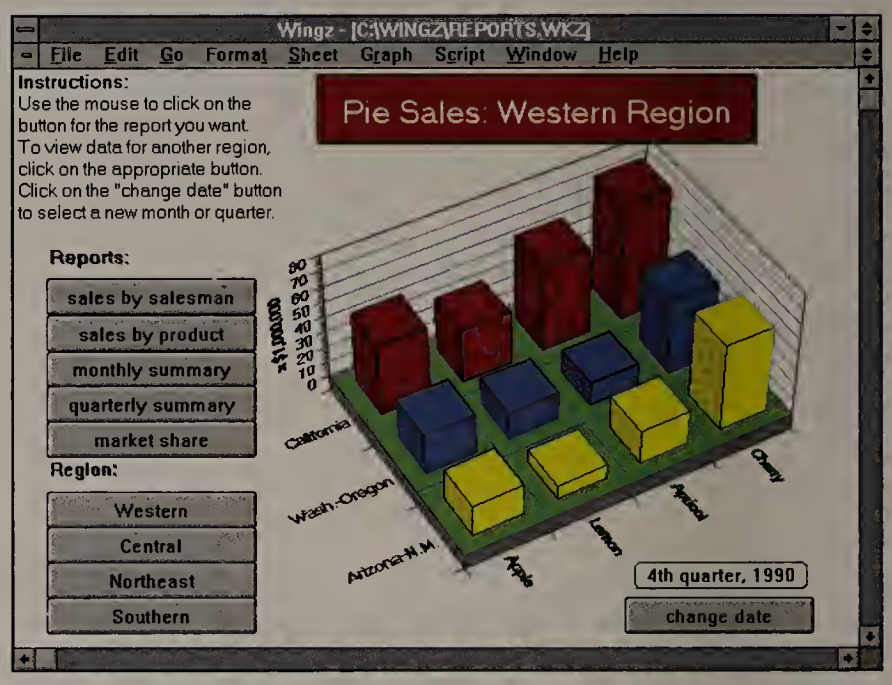
SPREADSHEETS

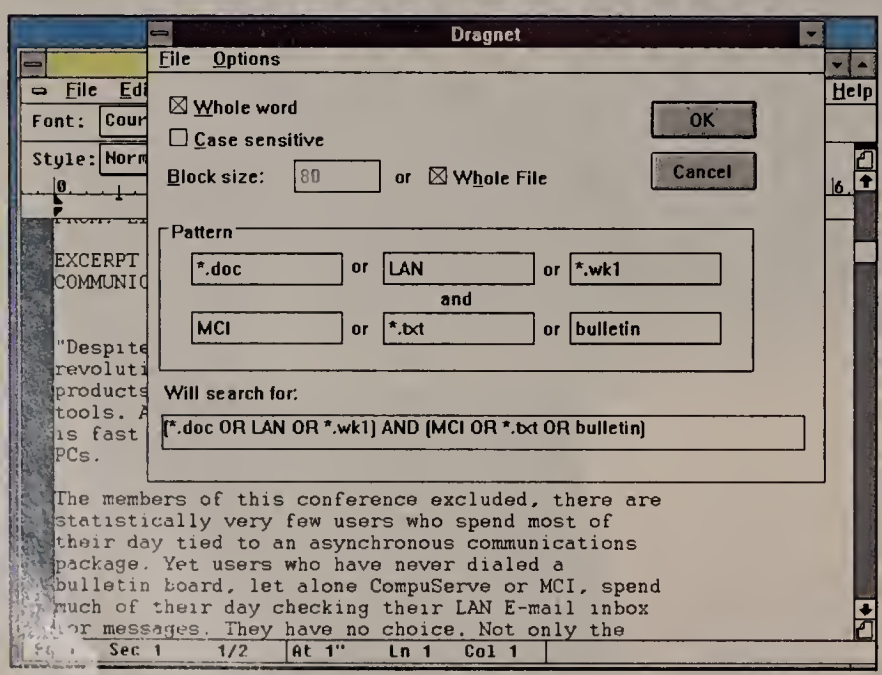
WINGZ 1.1

Wingz is the second power spreadsheet to splash down in the *Windows* pool. With built-in word processing, graphics tools, and a *HyperCard*-style scripting language, *Wingz* should allow patient users to create slick mouse-driven presentations, as well as more traditional spreadsheets.

Informix Software, Inc.
4100 Bohannon Dr.
Menlo Park, CA 94025
415/926-6300
List price: $499
Reader service no. 666

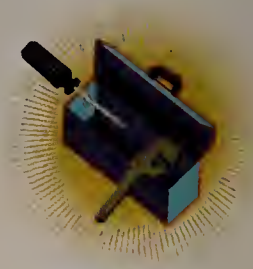
For more information about all products in this section, circle reader service no. 907.





DRAGNET 2.1

Constantly misplacing your car keys and data? *Dragnet* won't find the keys, but it can dig through your hard disk and locate data in any file, including data base and spreadsheet files. Simply supply a key word or phrase and any file types to include or exclude, and *Dragnet* collects the data in a summary file.



UTILITIES

Access Softek
3204 Adeline St.
Berkeley, CA 94703
415/654-0116,
415/654-4077 (fax)
List price: $144.95
Reader service no. 643

We've Manufactured Millions Of PC Products. One By One.

Fortron's NetSet™ workstations and file servers are designed and manufactured in the USA.

FORTRON STANDARD SYSTEMS

NETSET 386SX
2-MB RAM, 1.2 & 1.44-MB F.D.D.
80-MB H.D.D., VGA Monitor (1024 x768), DOS 4.01
System Total $2,150

NETSET 386-25
4-MB RAM, 1.2 & 1.44-MB F.D.D.
200-MB H.D.D. (16.5 ms), VGA Monitor (1024x768)
DOS 4.01
System Total $3,295
With 64k Cache $3,695

NETSET 386-33
4-MB RAM, 1.2 & 1.44-MB F.D.D.
200-MB H.D.D. (16.5 ms), VGA Monitor (1024x768)
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80486- 25/33-MHz Processor, 4-MB RAM
1.2 & 1.44-MB F.D.D.
200-MB H.D.D. (16.5 ms), VGA Monitor (1024x768)
64K Cache Memory, DOS 4.01
System Total 25 MHz $5,450
With 33 MHz $5,950

NETSET 486E, EISA
80486- 25/33-MHz Processor, 4-MB RAM,
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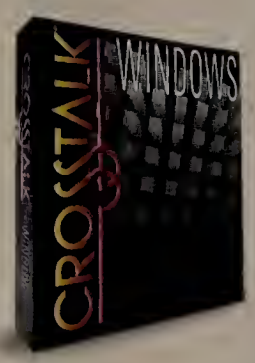

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206/881-9770 (fax)
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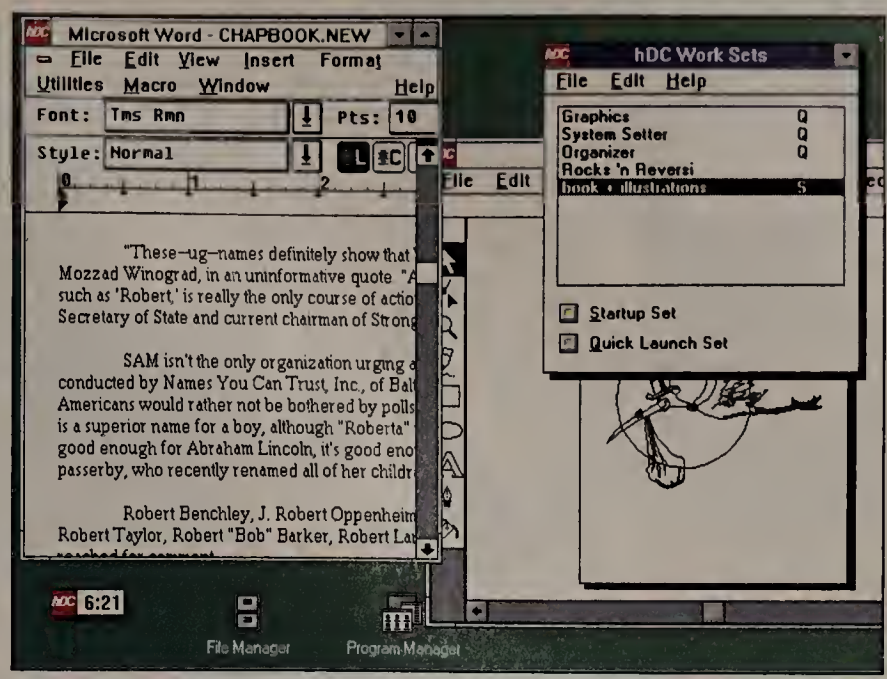
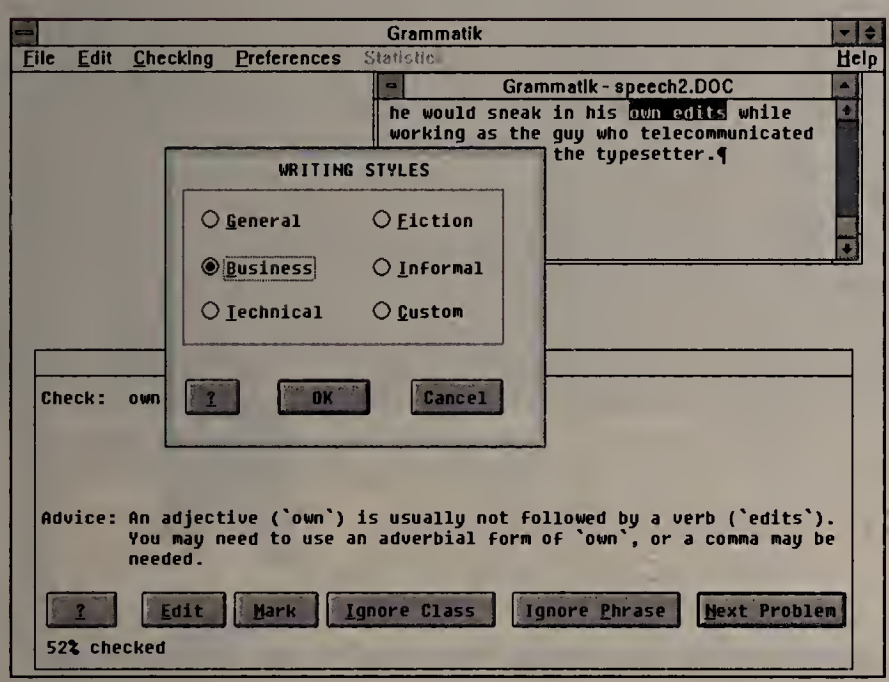
Reader service no. 647

FIRSTAPPS

hDC's *FirstApps* is a smorgasbord of handy pop-up utilities that replace or augment *Windows'* tools. The Work Sets feature used here lets you take a "snapshot" of application window sizes and placement, and it automatically restores the programs every time you run *Windows*. *FirstApps* also includes a memory viewer, fonts viewer, screen blanker, auto-save function, and more.





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Need an on-line copy editor for your business correspondence or purple prose? With *Grammatik Windows* you get more than just spell checking: The program flags grammatical errors, typographical slipups, and even stylistic boo-boos, and it offers relevant advice. As you can see in this screen, *Grammatik Windows* can adjust the sharpness of its blue pencil depending on the "writing style" you select.

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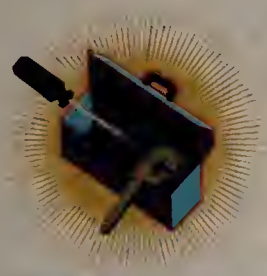

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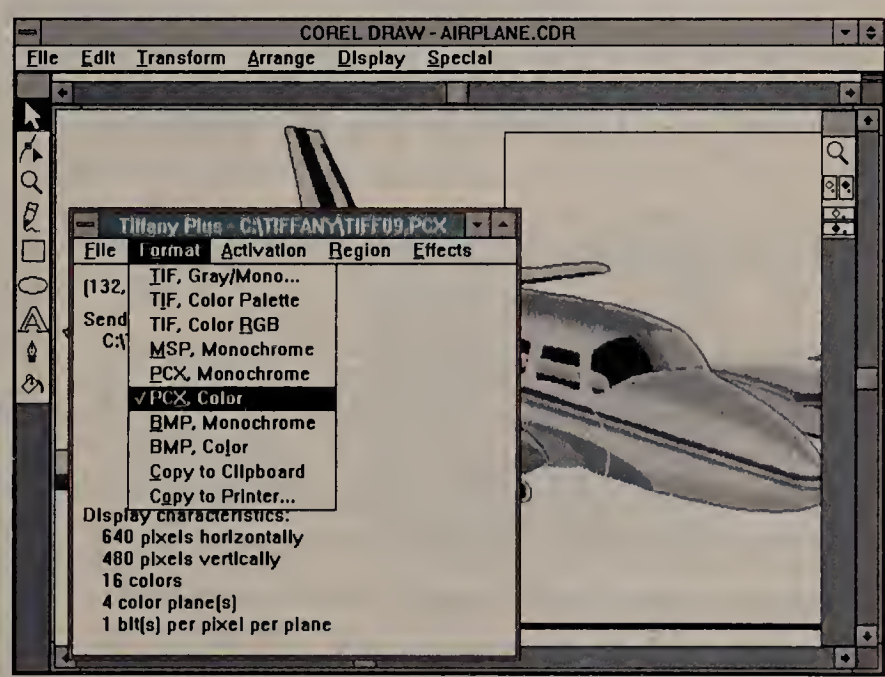
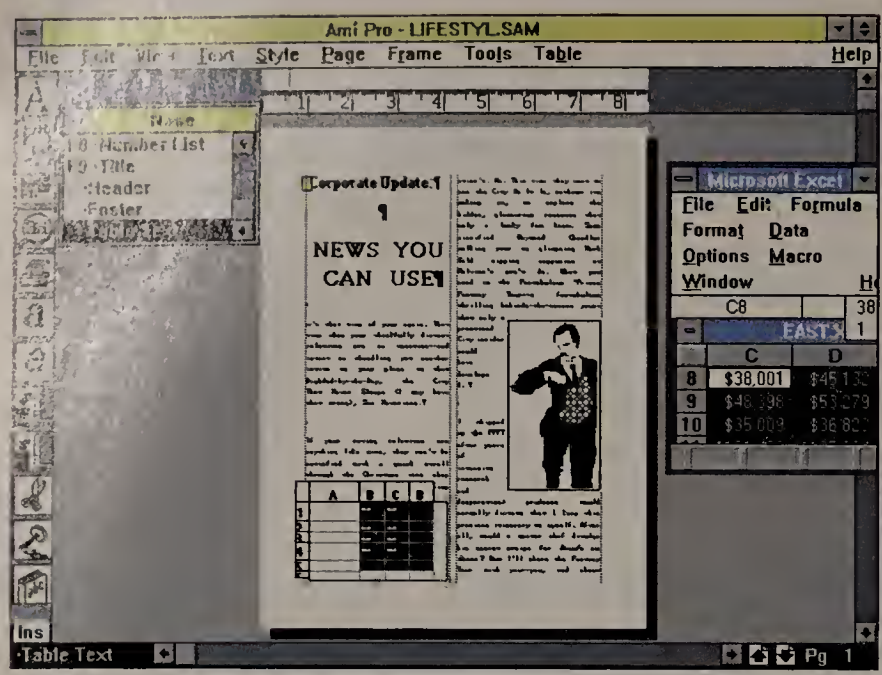
Tiffany is *the* screen capture-cum-file translation program for *Windows*. Press a key, and you save an on-screen image in one of eight file formats; then drop the image into your word processing, publishing, or other program. *Tiffany* lets you set gray levels for TIFF images and can capture selected areas of the screen. A TIFF-only shareware version is available on most commercial BBS's.

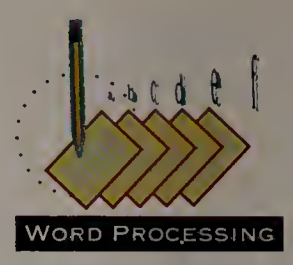
For more information about all products in this section, circle reader service no. 909.





AMI PROFESSIONAL 1.2

Word processing meets desktop publishing. *Ami Pro* offers meaty business features, from style sheets to index generation, yet is far more adroit than *Word for Windows* when manipulating graphics, tables, and type. From *Ami*'s bird's-eye view, you can still edit, set type, and move blocks; a feature new to this version lets you establish a two-way hot link with *Excel*.



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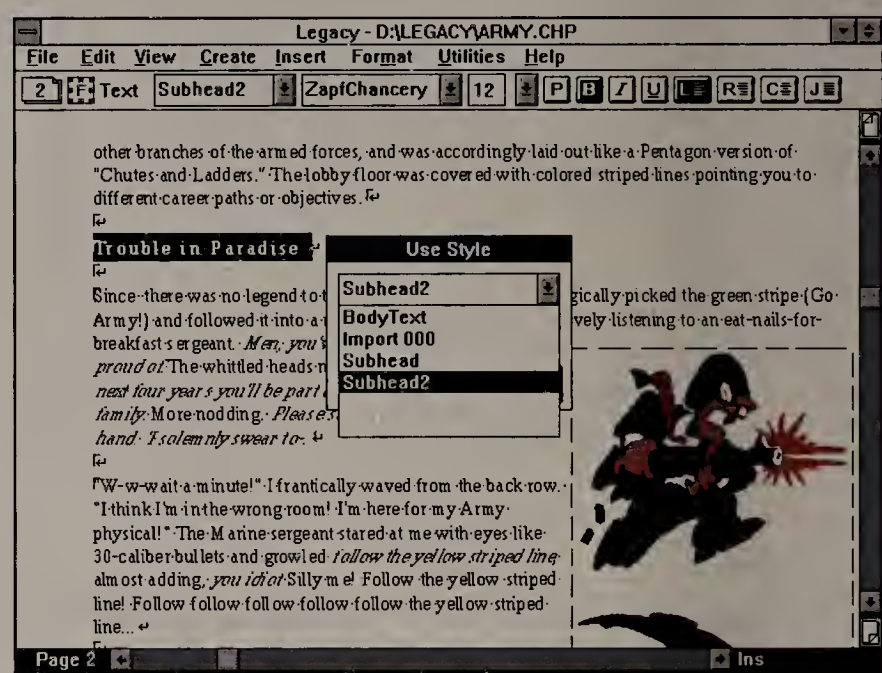
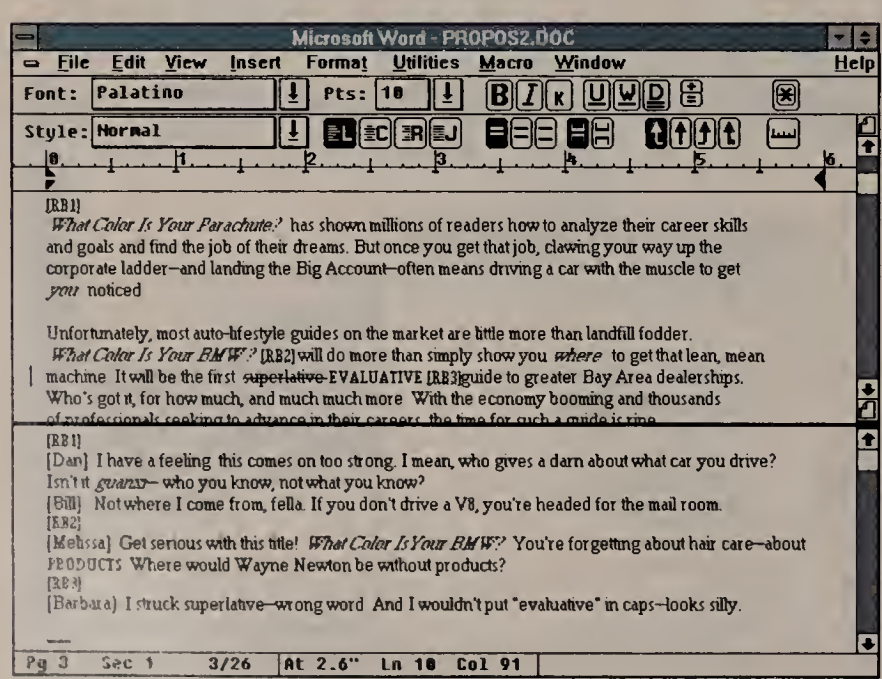
LEGACY

This successor to NBI's *Legend* may finally go toe-to-toe with *Word for Windows* and *Ami Pro*. *Legacy* is a frame-based word processor that offers similar heavy-duty features, such as style sheets and templates, automatic index generation, and table editing, plus a rash of typographic controls. Extras include full DDE support, graphics editing (color, rotation, cropping), and an online tutorial.





MICROSOFT WORD FOR WINDOWS 1.1

If *Ami* leans toward desktop publishing, *Microsoft Word for Windows* leans toward pumped-up word processing. The interface is a breeze: Fonts, text attributes, alignment, tabs, and more can be set by clicking a button. This screen shows off the group editing skills—you insert markers in text and add annotations in the bottom window. Later you can scroll the document and the notes in synch. Another plus: *Word*'s hot macro processor, which can remap the keyboard or create custom menus.

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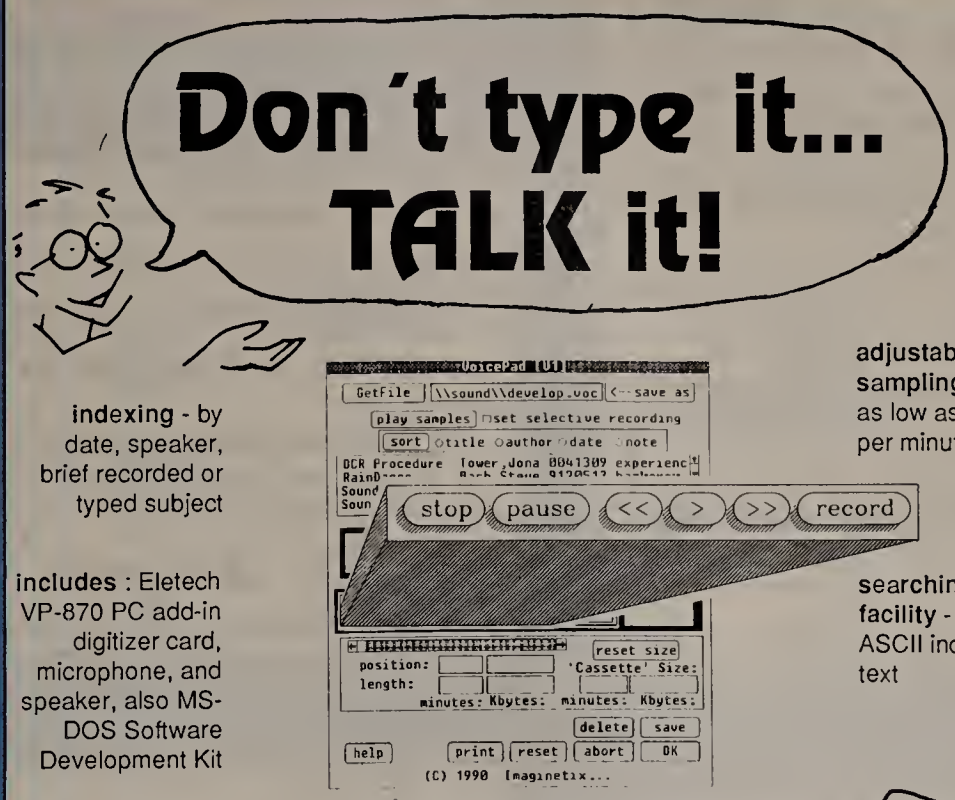

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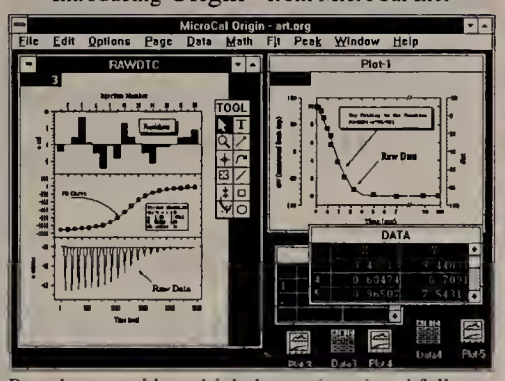

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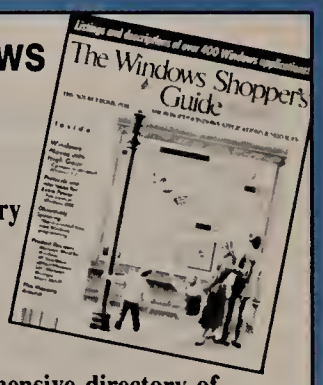

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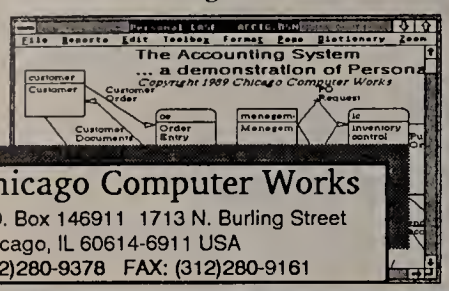

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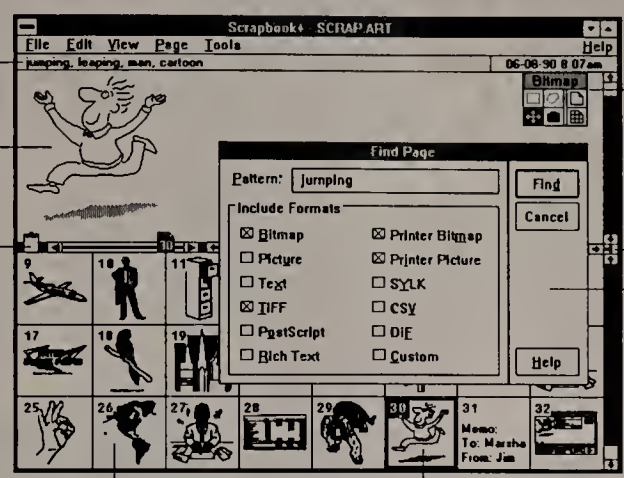

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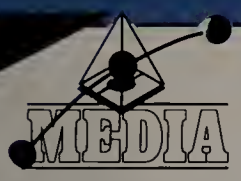

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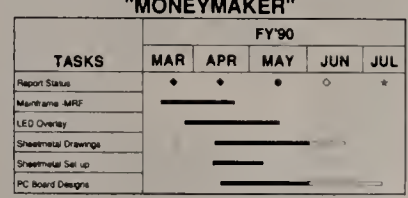

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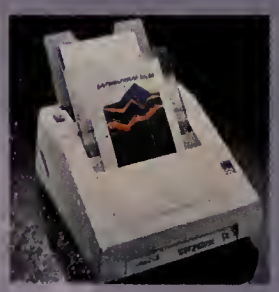

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Thanks for the Memory

Windows 3.0 can run fast and trouble-free—but installing and setting it up for optimal performance can be a little tricky. Five tips give you the lowdown on setup and speedup.

Jesse Berst

INSIDE HOW TO

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Windowing Environments

The pundits praise *Windows 3.0* for offering all the functionality of a Mac at a fraction of the price. They forget to mention that you still have to face the DOS prompt and a dizzying array of choices when it's time to install or reconfigure it.

Windows 3.0's Setup program is probably the smartest installation routine on the market—but it's not perfect. In this article, we'll tell you how to make your installation fail-safe. Then we'll deliver some commonsense performance tips, including special advice for 386 and 286 users.

▶ Bulletproof Your Installation

Setup scans your CONFIG.SYS and AUTOEXEC.BAT files and disables utilities it thinks will conflict with *Windows*. Where possible, it even replaces them with its own *Windows*-compatible versions. However, Setup doesn't know about every troublemaker, so we strongly recommend that you manually remove calls to dangerous utilities from your AUTOEXEC.BAT and CONFIG.SYS files *before* you let Setup go to work.

For safety's sake, save copies of these critical files under different names in another directory before you begin. Then load CONFIG.SYS into your word processor (in unformatted, ASCII mode), consult the list below, and delete the offending lines. Do the same with your AUTOEXEC.BAT file.

Windows 3.0 has its own versions (shown in parentheses) of these items, so you're not losing a thing by getting rid of them.

- Extended and/or expanded mem-

TABLE 1

The Three Modes of Windows 3.0

Depending on your hardware, Windows 3.0 starts in either real, standard, or 386-enhanced mode. Here's what you get—and what you don't.

Real mode

(designed for 8086/88-based PCs with at least 640K of memory and, under special circumstances, 80286- and 80386-based computers):

- Runs old *Windows* applications.
- Runs Swapfile utility.
- Runs *Windows* on 80286 and 80386 PCs with less than recommended memory.
- *Windows* and *Windows* applications use expanded memory.
- DOS applications can use expanded memory.
- DOS utilities (like RAM disks and print buffers) use extended memory.

Standard mode

(designed for 80286 or higher PCs with at least 1MB of memory):

- Multitasks *Windows* applications.
- Context-switches DOS applications.
- *Windows* and *Windows* applications use extended memory.
- *Windows* applications can use expanded memory.
- DOS applications can use expanded memory.
- DOS applications can use extended memory if their DOS extender is compatible with *Windows*.

386-enhanced mode

(designed for 80386-based PCs with at least 2MB of memory):

- Multitasks DOS and *Windows* applications.
- Swaps data to disk if memory runs short.
- *Windows* and *Windows* applications use extended memory.
- DOS applications can use expanded memory.
- DOS applications can use extended memory if their DOS extender is compatible with *Windows*.

ory managers for 386 systems, such as QEMM.SYS (HIMEM.SYS and EMM386.SYS)

- Disk caches such as *Super PC-Kwik* (SMARTDRV.SYS)
- Print buffers such as *PCache* (internal spooler)
- RAM disks such as DOS's VDISK.SYS (RAMDRIVE.SYS)
- Mouse drivers (MOUSE.SYS)

Microsoft recommends that you delete the DOS commands SUBST, APPEND, and ASSIGN if you find them in your AUTOEXEC.BAT, along with any lines that load TSR programs such as *SideKick*. You can use TSRs with *Windows*, but you should load them after *Windows* is running by starting them up in a DOS window.

One last, important installation tip: Setup automatically installs a driver in your CONFIG file that loads SmartDrive (*Windows'* disk caching utility). Initial releases of SmartDrive conflict badly with hard disks that rely on certain hard disk management utilities. This problem may not be apparent at first, but when it decides to act up, it can trash your data. The solution: Either upgrade to DOS 4.0 or higher (which supports multiple, large disk partitions and has no problem with SmartDrive), or disable SmartDrive by removing the CONFIG line that loads it. If your hard disk has more than 1024 cylinders, you have no choice: You *must* disable SmartDrive.

▶ Defrag Your Hard Disk

Few applications exercise the hard disk as much as *Windows* does. That's why the number one speed tip is to defragment your hard disk with a disk optimization program—such as the one included in *The Norton Utilities*. If you plan to install a permanent swap file (see below), it's important to defrag *before* installing *Windows*, since Setup will calculate the optimal size for the permanent swap file based on the largest contiguous space it finds on the disk. If you elect to stay with *Windows'* default temporary swap file, regular defragmentation is a must so *Windows* can find sufficient disk space to create dynamic swap files big enough to accommodate your memory needs.

▶ Install More Memory

The most obvious performance tip is to make sure you've got plenty of RAM. That means at least 4MB if you plan to take full advantage of the environment and keep several applications open simultaneously. If your system accepts standard SIMMs (single in-line memory modules), you may be able to upgrade for $100 or less per megabyte.

▶ For 386 Users Only: Create a Permanent Swap File

Running *Windows 3.0* on a 386 or 386SX with at least 2MB of RAM presents special advantages. In this configuration, you can run *3.0* in its optimum "386-enhanced" mode. The other two modes—"standard" and "real"—are intended primarily for 80286s and machines with less than 1MB of RAM (see **TABLE 1**). Standard and real modes lack, among other things, one of *3.0*'s most important features: *virtual memory*.

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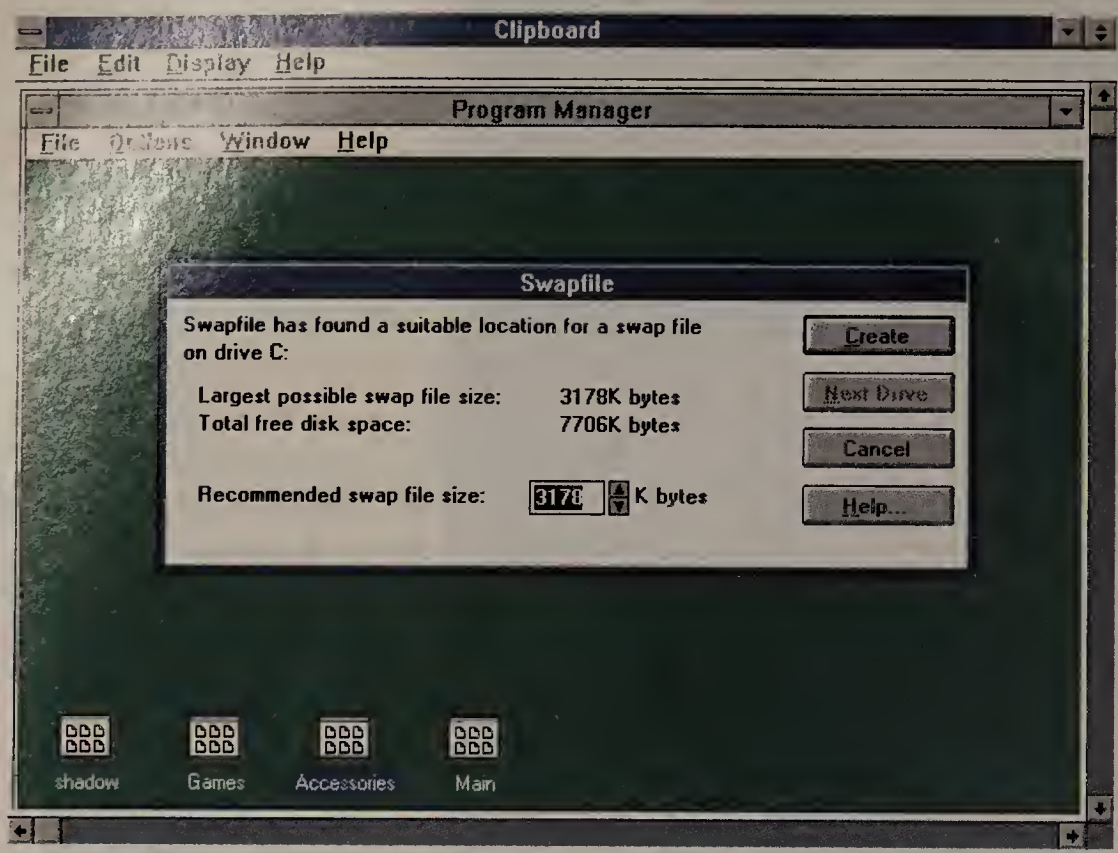

Initially, Swapfile sets Windows' permanent swap file to use half the free disk space. If you like, you can use the mouse and the <Cursor Up> and <Cursor Down> keys to adjust the size.

Earlier *Windows* versions gave you the error message 'Not enough memory' when you tried to load more than system RAM could hold. Thanks to virtual memory, instead of preventing you from opening another window or loading an extralarge application, *Windows* automatically swaps from RAM to disk —that is, it treats disk space as if it were memory.

Windows uses two types of special swap files to hold data that won't fit in RAM. By default, *Windows* automatically creates temporary swap files on the fly and deletes them when you exit the program. For performance improvement, however, the documentation recommends that you manually create a permanent swap file instead.

Interestingly, Microsoft has backed off from a blanket recommendation for permanent swap files, admitting that actual improvements are negligible for most users. However, you may gain speed benefits from a permanent swap file if your memory headroom is low (less than 4MB), if you commonly run more than two or three applications at the same time, and if you constantly create, revise, and delete files, keeping your hard disk both crowded and fragmented.

To install a permanent swap file, you must run the Swapfile utility. First, exit *Windows* and restart it in real mode by typing **win/r** and pressing **<Enter>** at the DOS prompt (see **TABLE 1** for details on *Windows 3.0* modes). Make sure that no other applications are running—no TSRs, no pop-ups, not even File Manager.

Now select *Run* from the File menu, type **swapfile**, and click on *OK* or press **<Enter>** to execute the program. If you've closed everything and still get an error message, check your WIN.INI file; look for lines that start with 'run=' or 'load=' and disable them temporarily by placing ; at the beginning. Then restart *Windows* in real mode and try again.

Once you've got Swapfile running, a dialog box shows how much free disk space you've got, notes the largest possible swap file, and suggests the optimum swap file size for your hard disk, usually about 50 percent of the total available space.

You can adjust swap file size by clicking on the up and down arrows in the Swapfile dialog box. As a rule, larger is better, but leave yourself enough disk space for normal operations. When you're satisfied with the file size, click on *Create*, exit *Windows*, and start up again in 386-enhanced mode.

► For 286 Users Only: Keep a Lid on Expanded Memory

If you have a 286 with 1MB or more of memory, *Windows* starts up in standard mode by default. Not only does standard mode deny you virtual memory capability (when you're out of RAM, you're out of RAM), it also limits your flexibility when you run good old DOS applications under *Windows*.

Unlike 386-enhanced mode, standard mode won't let you multitask DOS applications. Moreover, you must decide whether to set up memory above 640K as extended memory or as a combination of extended and expanded memory.

The rule of thumb is simple: If you don't plan to run DOS applications that need expanded memory, configure all

POWER TIP NO. 148

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Selecting any *Lotus Express* accessory (Reader, Comm_Manager, and so forth) pops up a window that obscures whatever else is on the screen. By pressing both **<Shift>** keys simultaneously, you can make the window temporarily disappear so that you can view the DOS prompt, application, or other *Express* accessory behind it. Releasing one or both **<Shift>** keys restores the current accessory's window.

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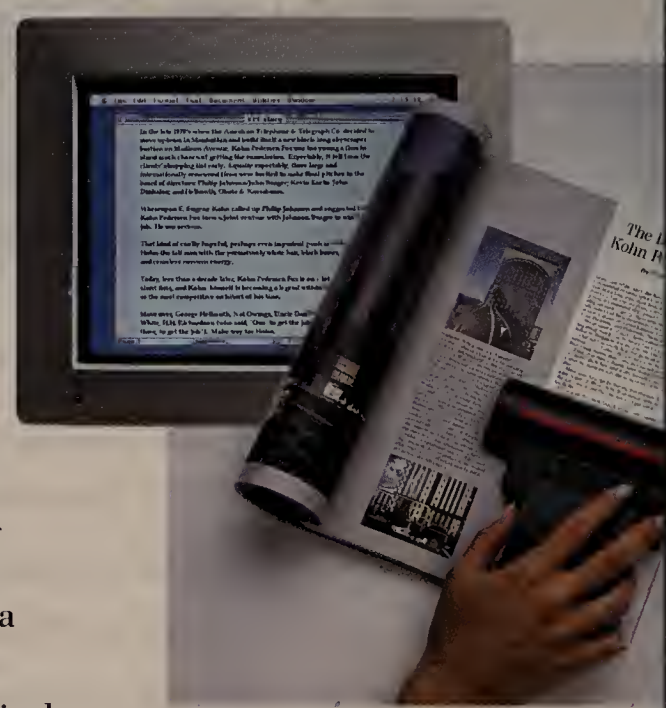

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TUNE IT UP OR LET IT BE?

Unlike *Windows 2.0*, which even Microsoft admits needed a lot of tweaking to run acceptably, *Windows 3.0* is engineered to install itself with the right stuff the first time around. In most cases you should simply accept the defaults during installation. *Windows 3.0* is designed to run multiple applications; trying to tune it for one may impair performance with others.

Take *Windows'* disk caching utility, Smartdrive, as an example. Based on the RAM available in your system, *Windows* decides on an optimum range for the cache size (from 512K to 2MB in a 4MB system, for instance). *Windows* cleverly shrinks the cache if it needs the memory for applications and expands the cache if it doesn't. Mess with the parameters, and you'll hobble *Windows'* ability to optimize its own performance.

This time, Microsoft has done its job well. The most effective ways to improve *Windows'* speed have nothing to do with configuration settings at all. Just make sure *Windows* has plenty of RAM, and defragment your disk regularly. —*J. B.*

RAM above 640K as extended. On a 286, this memory probably resides on an expansion board, although a few 286 systems have space on the motherboard for 2MB or even more. In either case, you'll need to set hardware switches (or, rarely, a software configuration utility) to allocate this memory as extended.

If you're determined to run expanded-memory DOS applications—either from within *Windows* or from the DOS prompt—you'll need to set those switches to indicate the amount of expanded memory you want available to these applications. In addition, you'll need to add a DEVICE= line to your CONFIG.SYS file that loads an expanded memory manager (EMM).

Memory expansion boards and systems usually come with their own EMMs, along with instructions on how to install them. Often, you need to specify the amount of expanded memory in the CONFIG.SYS line, making sure it matches the amount you've designated with switches.

How much expanded memory should you allocate? As a rule, as little as possible, because any RAM you reserve as expanded memory is invisible to *Windows*—and less memory means poorer performance. If your memory-hungry expanded-memory DOS application can get by with 256K expanded, then that's all you should set aside.

Note that *Windows* is finicky about EMMs. If you've already installed in your CONFIG.SYS one that *Windows* doesn't like, *Windows'* Setup program will remove the EMM automatically when it runs. If you install an incompatible EMM after you run Setup, *Windows* may crash or simply refuse to run.

No Pleasure Without a Price

Windows 3.0 offers so many benefits that it's well worth the trouble to install and configure it properly. It's really not that hard—and if you take care with installation now, you're far less likely to face an unexpected conflict, crash, or slowdown later, when you're under deadline.

Jesse Berst is president of Compu-Think, a Seattle company specializing in publications about Windows, *and author of the forthcoming* Windows Bible *(Peachpit Press, Berkeley, California).*

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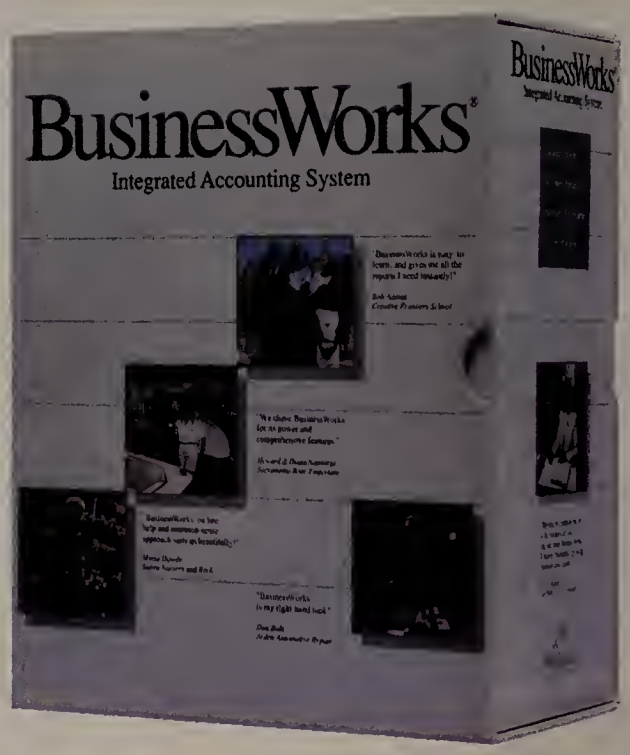

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Words Into Print

Word Processing

Tips for getting the most out of your word processor

This month: Organize long documents in WordPerfect, print the current page in Microsoft Word, and supercharge WordPerfect with start-up options.

George Campbell

Creating and editing long documents can be a real problem. As documents grow in length, searching, scrolling, and editing slow down. With *WordPerfect 5.0* and *5.1*, however, you can avoid this problem by splitting a large document into smaller files and linking them with a single master document. This month's column explains how to use master documents and shows how to set up a table of contents and an index that cover all the subdocuments.

Master documents have a number of other advantages. Changes made in subdocuments are always reflected in the master (and vice versa), and you can expand or condense a master to display all the text or just the links, making it easy to rearrange sections. Also, master documents let you create indexes and tables of contents more easily. On a LAN, linked files can be located anywhere users are authorized to share files, so you can easily pull together documents from multiple authors.

Yes, Master

To create a master document, fire up *WordPerfect* with a blank screen, and follow these steps.

1. If you plan to have a table of contents, press **<Ctrl>-<Enter>** to insert a page break.

2. To link up another document to the master, press **<Alt>-<F5>s**, type the subdocument's path and file name, and press **<Enter>**.

3. If you want to add a comment identifying the file, author's name, due date, and status, press **<Ctrl>-<F5>cc**, enter your notes, and press **<F7>**.

4. Press **<Ctrl>-<Enter>** if you want the next subdocument to start on a new page.

Repeat these steps for each subdocument. If a file doesn't exist yet, you can still create the link and add the file later. An on-screen box identifies the link, and another displays the comments.

You can expand the master to display the contents of all subdocuments by pressing **<Alt>-<F5>ge**. New boxes appear that identify the beginning and end of each subdocument. In expanded mode, you can jump between subdocuments quickly. To jump to the beginning of the next subdocument, press **<F2><Alt>-<F5>ss<F2>**. To jump to the end of the current one, press **<F2><Alt>-<F5>se<F2>**. To move

WORDPERFECT SHORTCUT

Start-Up Options

By adding options to the *WordPerfect 5.0* or *5.1* start-up command, you can customize the program to suit your needs. Here are some of the most useful options. Just add the text shown below after you type **wp**. A complete list of options is in the *WordPerfect* appendix.

Filename starts the program and loads the specified file. Precede the file name with a space character, and add the path if necessary.

/m-*macroname* runs the macro you name when *WordPerfect* loads.

/r loads some *WordPerfect* files into expanded memory, increasing program speed.

/ne forces *WordPerfect* to ignore EMS memory. Try this if *WordPerfect* sometimes locks up.

/x starts *WordPerfect* with its default setup options. Use this option to temporarily ignore changes you've made with *Setup*(**<Shift>-<F1>**).

If you always use one or more of these options, include them in a batch file to start *WordPerfect*. Or you could add them directly to the DOS environment as a DOS variable called WP—by including, for example, the command **set wp=/m-***macroname* in your AUTOEXEC.BAT file.
—*G. C.*

backward, use <Shift>-<F2>.

To condense the master, press <Alt>-<F5>go. Press y to save subdocuments or n to skip saving. To save all the subdocuments, press r after pressing y.

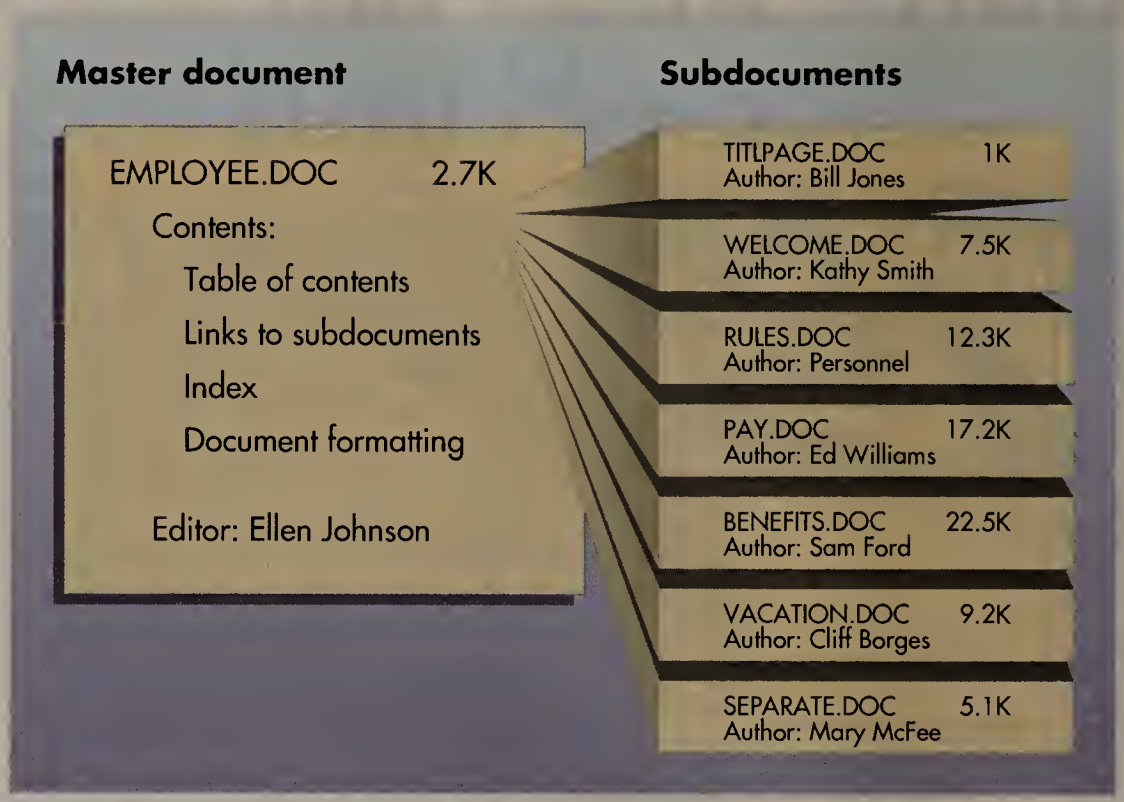
In the condensed mode, you can use *WordPerfect*'s block move functions to change the order of subdocuments easily:

1. Place the cursor above the double-dashed page-break indicator and press <Alt>-<F4>.

2. Press <Cursor Down> to mark the subdocument and any comments, then press <Ctrl>-<F4>bm.

3. Move the cursor to a new location and press <Enter>.

WordPerfect Master Documents



WordPerfect's master document feature makes it easier to coordinate large documents created by a number of different authors, such as this employee handbook.

Creating a Table of Contents

With master documents, you can create a table of contents or index that reflects the entire document. Before doing this, mark any keywords and the heading as table and index entries in each subdocument. You can do this either in the expanded master or in the individual subdocuments.

To mark an index entry in a subdocument, position the cursor on the text, press <Alt>-<F4>, then block the text. Press <Alt>-<F5>i<Enter><Enter> to accept the default heading and subheading values. Follow the same steps for a table of contents entry, but press <Alt>-<F5>c1<Enter>1 after blocking it.

Then, with the master document condensed, follow these steps:

1. Move the cursor to the beginning or end of the document to locate the table of contents or index.

2. Press <Alt>-<F5>d to define the format of the table or index.

3. Press c to define a table of contents, and press <Enter> to accept the default formats or make changes as needed. To define an index, you would press i<Enter>5 instead.

4. To generate the index and table of contents, press <Alt>-<F5>gg. Press y to replace existing tables and indexes.

WordPerfect will expand the master and create the tables. It will then prompt you to update the subdocuments before condensing the master again. Press y, and the table and index will appear in the master. If you make changes or rearrange subdocuments, generate the table and index again.

Margins, page formats, and numbering sequences set at the top of the master automatically apply to subdocuments unless specifically overridden. Also, note that you must expand the master before previewing or printing. ID boxes and comments will not print.

That's all you need to do. Other lists and cross-references are handled in the same way.

George Campbell is a contributing editor for PC World.

WORD SHORTCUT

Print the Current Page

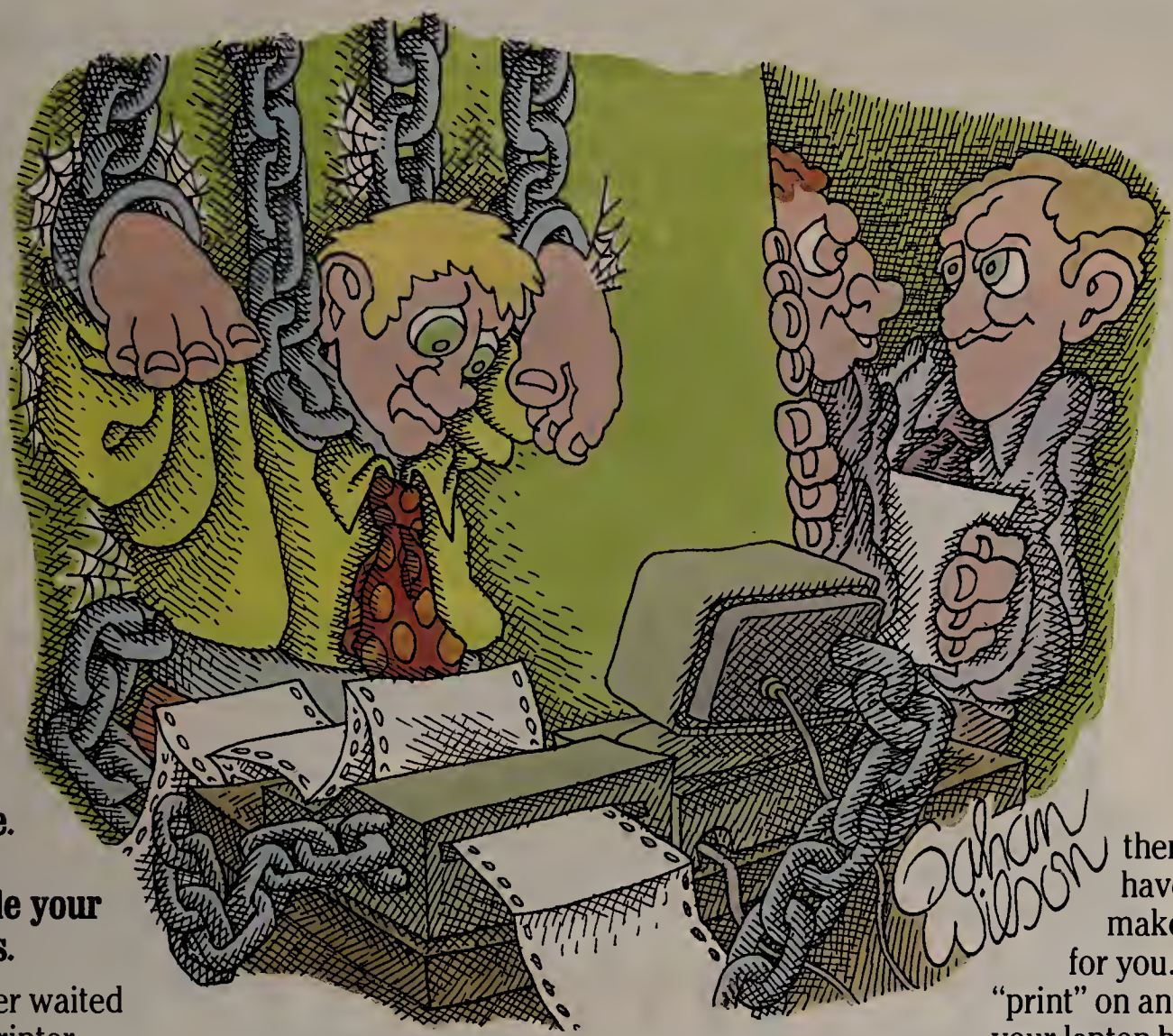
This *Word 4.0* and *5.0* macro prints the current page with a single keystroke. Type the actual characters below on a blank *Word* screen. Press <Ctrl>-[and <Ctrl>-] to create the chevron characters («»). (Note to *Word 4.0* users: Substitute <down 3> for <*down 4*>, and paginate the document before using.)

```
<ctrl esc>jp
«set current=field»
<ctrl esc>po<down 4>p
<tab>«current»<enter><enter>
<ctrl esc>po<down 4>a
<enter><esc>
```

To store the macro, press <Shift>-<F10><Esc>c. Type PrintPage and press <Enter>. Press <Esc>tgs<Enter> to save the macro in the current glossary file.

To use the macro, press <Esc>i, type printpage, and press <Enter>. —*G. C.*

Still hanging around, waiting for your spreadsheets to print?



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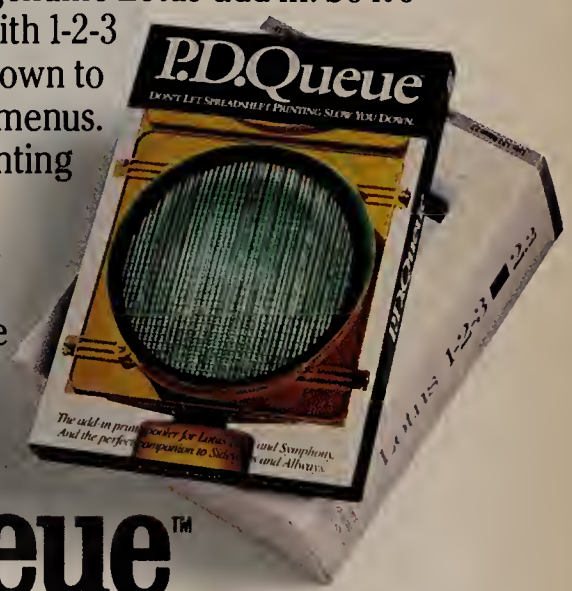

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Circle 60 on reader service card

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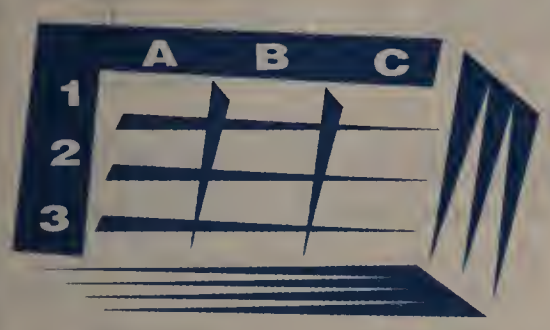
Spreadsheets (A..Z)



Spreadsheets

Practical tips for building better worksheets

This month: Things are looking up!

Richard Scoville

Lookups are an essential item in the spreadsheeter's bag of tricks. A lookup function "looks up" a value in a table; when it finds a matching value, the function returns the value of a corresponding cell. This feature allows you to write formulas that extract data base values: For example, a formula can look up a product's name in an inventory data base to extract its cost. Lookups also let you match constants to values, so a formula can match a dollar amount to the appropriate tax, interest, or discount rate.

The VLOOKUP (vertical lookup) and HLOOKUP (horizontal lookup) functions have the same names and work almost identically in all major spreadsheet programs. The VLOOKUP function first compares a specified value (usually taken from a designated cell) with entries in the first column of a lookup table. When a match is found, VLOOKUP returns the value from a column specified by the formula in the same row as the match. HLOOKUP is similar, but it compares the value with the top row of the lookup table and returns the value from the specified row of the matching column.

We'll look at the mechanics and particulars of lookup functions in the context of two familiar applications—cost estimates and tax calculations—both shown in **FIGURE 1**. Follow the instructions below the figure to create the sample worksheets. For each, set the default numeric style to a comma with two decimals: In *1-2-3*, select */Worksheet Global Format*, and press **<Comma>2<Enter>**; in *Quattro*, select */Options Formats Numeric_Format*, press **<Comma>2**, and select *Quit Quit*.

Exact Matches

The table in A1..D5 in the first example represents a personnel data base, with department, hourly insurance charges, and hourly pay rates for each employee. Keeping this information in a data base is convenient for reference and for making changes, but without lookup func-

Extracting Data From Tables

Example 1

```
      A          B       C       D
1  EMPLOYEE    DEPT.   INS/HR  RATE/HR
2  Ferstner    SHOP     0.41    18.56
3  Scully      SHOP     1.02    25.90
4  Woz         YARD     0.48    18.56
5  Gates       YARD     2.09    22.05
6
7  EMPLOYEE:   GATES
8  HOURS:      10
9  DEPT.:      @VLOOKUP(EMP,EMP_DATA,1)
10 COST:       (@VLOOKUP(EMP,EMP_DATA,2)+
                    @VLOOKUP(EMP,EMP_DATA,3))*HOURS
```

Example 2

```
      A          B        C
1  THRESHOLD    BASE     RATE
2      0.00      0.00   0.15
3  29750.00   4462.50   0.28
4  71900.00  16264.50   0.33
5 149250.00  41790.00   0.28
6
7  INCOME:    45000.00
8  THRESHOLD: @VLOOKUP(INCOME,RATES,0)
9  TAX:       (INCOME-THRESHOLD)*@VLOOKUP(INCOME,RATES,2)+
                @VLOOKUP(INCOME,RATES,1)
```

FIGURE 1: The first example represents part of a personnel data base, and the second is an abbreviated federal income tax table. Enter the data and labels for each in a separate spreadsheet. Before entering the formulas (B9 and B10 in example 1, B8 and B9 in example 2), create the following range names: for example 1, A2..D5 is EMP_DATA, B7 is EMP, and B8 is HOURS; for example 2, A2..C5 is RATES, B7 is INCOME, and B8 is THRESHOLD. (Note: the formulas in cells B10 of example 1 and B9 of example 2 have been split into two lines only to accommodate the figure.)

EXCEL SHORTCUT

Mixing Combinations for Snazzier Charts

Ralph Soucie

You can deliver a stronger message by mixing two different chart types. For instance, you might chart the most important data series as a thick line, the others as columns.

To do this, first set up your spreadsheet so that the series you want to emphasize is the *last* row of the range you want to chart. Create the chart, choose *Gallery Combination*, and select the combination you like. *Excel* automatically assigns half the data series to each chart type. Choose *Format Overlay* and set First Series in Overlay Chart equal to the total number of data series so that only the last series is displayed in the second type.

If none of the six Gallery choices fills the bill, you can mix and match manually. For instance, to overlay an area chart with a line chart, select *Gallery Combination 4* to create a column chart overlaid on an area chart, then choose *Format Overlay Type Line.*

SPREADSHEET TOOLBOX

Add Another Dimension With 3-D Graphics

Perspective-view "3-D" graphs are often better than conventional flat bar charts for comparing trends among various data sets. For instance, it's easier to see which of several what-if scenarios offers the most consistent results or to compare the monthly sales figures of several departments when the values are represented as a 3-D array of columns.

3-D Graphics, a $145 add-in from Intex Solutions, offers *1-2-3 2.x* users a basic repertoire of 3-D bar charts, line graphs, and surface plots. Graph commands are similar to *1-2-3*'s, except that you select a single rectangular data range of up to 10 by 100 cells (or up to 100 by 100 cells for surface plots only).

You can rotate a graph horizontally 90, 180, or 270 degrees, choose from among three viewing angles, and change colors, widths, and so on. Titles and scaling options are also similar to *1-2-3*'s, but they don't include legends, format options, or data labels. For printing, *3-D Graphics* produces PIC files that can be printed or displayed with *Allways.*

3-D Graphics earns my recommendation. Using only 55K of memory, it's a solid product that meets a real need. —*Richard Scoville*

3-D Graphics $145; Intex Solutions, Inc., 161 Highland Ave., Needham, MA 02194; 617/449-6222, 617/444-2318 (fax)
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tions, doing calculations using data base values would require a confusing tangle of formula references.

For example, the formula in cell B9 looks up an employee's department. In the formula @VLOOKUP(EMP,EMP_DATA,1), EMP is the range name of the cell (B7) containing the employee name to be looked up, EMP_DATA is the range name of the lookup table itself (A2..D5), and the final number indicates the column of the table containing the value you want. (Since VLOOKUP counts the leftmost column of the lookup table as 0, the *1* here selects column B. Some spreadsheet programs—notably *Excel*—number lookup table columns starting with 1. In this case, increase the column number in all the following examples by 1.)

Now if you enter *GATES* in cell B7, the @VLOOKUP formula in B9 looks for the table row starting with *GATES* (row 5), jumps one column to the right, and returns the value: *YARD.* Try changing the item entry in cell B7: *FERSTNER* yields *SHOP*, *WOZ* yields *YARD.*

Note that because column 0 of this table contains labels, @VLOOKUP demands an exact, case-sensitive match: Enter *Gates* in B7 and the formula won't work. You can bypass this problem with the @UPPER function, which converts the name to uppercase before looking it up. Change the formula in cell B9 to **@VLOOKUP(@UPPER(EMP),EMP_DATA,1)** to see how it works.

Next, let's examine the formula in B10, which computes an employee's labor and insurance charges: (@VLOOKUP(EMP,EMP_DATA,2)+ @VLOOKUP(EMP,EMP_DATA,3)) *HOURS. Again, the employee name (range name EMP) is given in cell B7. The first @VLOOKUP fetches the employee's insurance rate from column 2 (or C), the second gets the hourly wage from column 3 (or D), the two values are added, and the result is multiplied by the number of hours entered in B8 (range name HOURS). In the example given, where the name in B7 is *GATES*

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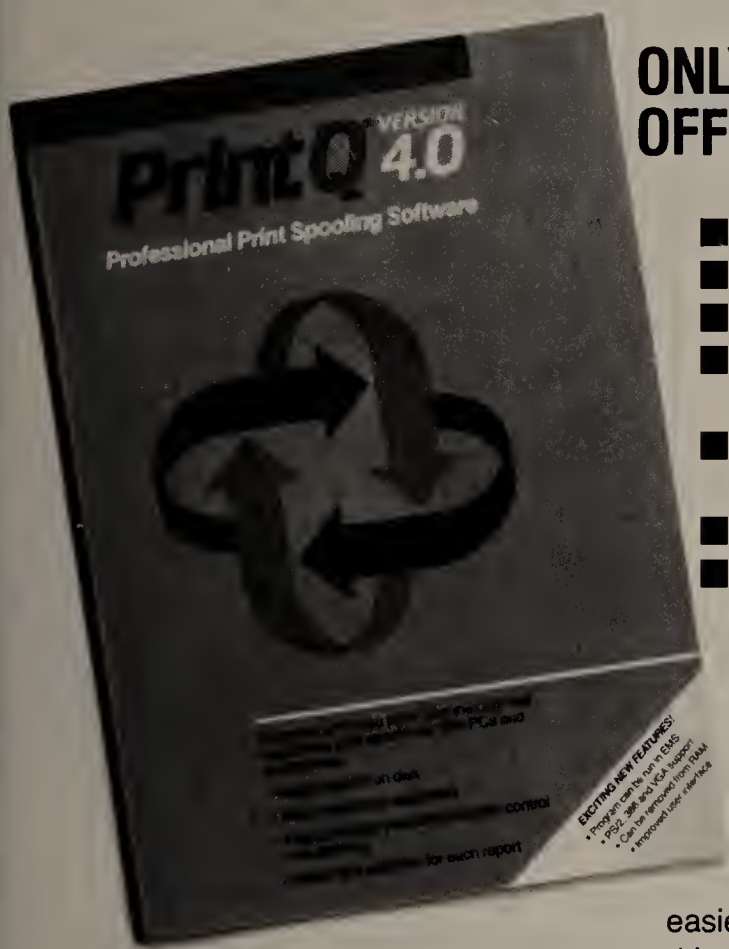

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and the value of B8 is *10*, the result of the formula in B10 will be 241.40.

Numeric Tables

The table in the second example is a simplified version of the 1989 federal income tax Schedule Y. Column 0 (A2..A5) of the RATES table (A2..C5) contains the threshold income of each tax bracket. The numbers in column 0 must be arranged in ascending order—lookup results will be unpredictable otherwise. Column 1 (B2..B5) is the base tax for each threshold income, and column 2 (C2..C5) is the tax rate on income in excess of the threshold amount.

Lookup functions are a great way to organize your worksheets, and they're easy to use.

Now look at the formula in A8, which calculates the threshold value for the income entered in cell A7 (range name INCOME): @VLOOKUP(INCOME, RATES,0). When working with numeric items, @VLOOKUP matches the table value that is *equal to or less than* the item. In this case, where the INCOME value given is 45,000, @VLOOKUP selects row 3, then returns the threshold value from column 0 (29,750).

The formula in cell A9 calculates the total tax on the income given. First it subtracts the THRESHOLD (A8) from the total INCOME (A7), then multiplies the result by the proper rate (column 2), and finally adds the base tax (column 1).

Lookup functions are a great way to organize your worksheets, and they're easy to use once you get the hang of it. For your next worksheet project, just go look it up!

Richard Scoville and Ralph Soucie are contributing editors for PC World.

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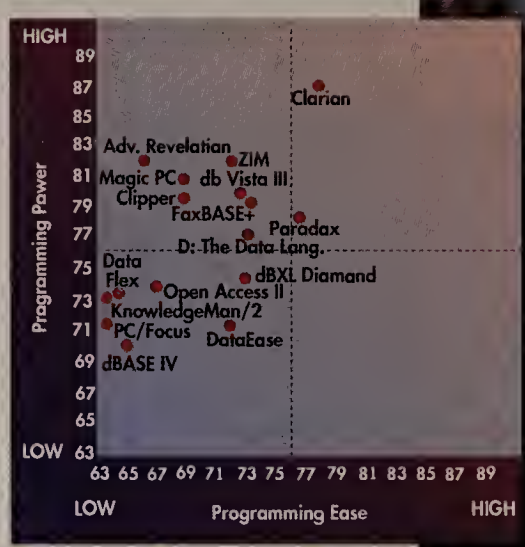

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Data Basics

Data Management

Tips and techniques for managing your data

This month: What if...

Alan Schwartz

How do you make your dBASE application do one thing when you press Y and another when you press N? Or flash a warning if a customer's credit rating is bad? What if your report should say one thing under one condition and something else under another? All these problems call for dBASE's IF command or its lesser-known cousin, the IIF() (immediate if) function. Either will have one effect when a given condition is true and another when it's false.

There's no limit to the commands IF can run, whether the condition is true or false. IIF(), on the other hand, can return only one value for each possibility. But IF can be used only in a PRG program, while IIF() can also be used in reports, indexes, and at the dot prompt.

Between an IF and an ENDIF

A simple IF routine starts with IF *condition*, where *condition* is any statement that must be true or false. The routine ends with ENDIF. In between are commands that execute only if the condition is true. For example, in Acme Home and Garden Tool Rental's invoice entry program, the IF statement can be used to run a credit check if a customer is charging and skip it if the customer pays cash. Indentation isn't required but will help preserve your sanity when you read the code.

```
STORE ' ' TO PayBy
@ 5,10 SAY "Pay now or Charge? P/C ";
GET PayBy PICTURE "@!"
READ
IF PayBy = "C"
   DO CredChek
ENDIF
```

When creating an invoice—presumably while the customer waits—the employee fills in the PayBy variable with either a **P** for immediate payment or **C** for a charge. If the PayBy equals 'C', the DO command runs the CredChek subroutine. Otherwise, that routine is skipped.

What ELSE?

The optional ELSE command goes between IF and ENDIF. The commands between **IF** *condition* and **ELSE** execute if the condition is true; otherwise, those between **ELSE** and **ENDIF** run. For instance, after the CredChek subroutine finds the customer's credit status, it might run the following:

```
IF Customer->CredStatus =  "N"
   set color to w+*/r
   @ 8,10 say "Deadbeat Alert!"
   set color to w/b,n/bg
ELSE
```

DATA BASE TOOLBOX

Data Junction

If you deal with two or more data file formats, you know what a headache it is to share data between them. Tools & Techniques' *Data Junction* offers a central hub for keeping all your diverse data formats in control.

Data Junction is a simple data base program that offers powerful file conversion capabilities. Not only can you convert from a variety of formats, but you can also select the data to be converted. You can, for instance, extract the Name, Phone, and Balance fields of a DBF file's records where State equals 'CA', and read them into a WK1 worksheet. Once this criterion is set, the conversion can be invoked repeatedly by issuing a short command at the DOS prompt. This program can even be used as a consistent data-entry front end for all the formats it supports.

These file formats include *Excel, Paradox, Q&A, Enable, Clarion,* EBCDIC (for mainframe data), DBF, WK1, and dozens more. *Data Junction* requires 512K and a hard disk, and it retails for $99, $199, or $299, depending on the included formats. —*A. S.*

Data Junction; Tools & Techniques, 1620 W. 12th, Austin, TX 78703; 800/444-1945, 512/482-0976.
Reader service no. 670

```
@ 8,10 say "Credit OK      "
ENDIF
```

If CredStatus equals 'N', an ugly, insistent, white-on-red warning flashes. If CredStatus doesn't equal 'N', a quieter message says that the customer's credit is good.

Functionally Speaking

The IIF() function puts the activity of IF/ELSE/ENDIF into a single line. Functions are elements of the dBASE language that return or change values such as character strings, numbers, or dates. Putting a field or variable value through a function gives you something other than the original contents. For instance, if FirstName equals 'Tex', the UPPER() function causes @ 10,10 SAY UPPER(FirstName) to display 'TEX'.

IIF()'s syntax is **IIF(*condition, value, value*)**. If the condition is true, the first of the two values is returned; if it's false, the second is returned. These values can be characters, dates, or any other type of data—so long as both values are of the same type.

With IIF(), the eight-line CredChek sample shown above can be replaced with one command: **@ 8,10 SAY IIF(Customer->CredStatus = "N", "Deadbeat Alert!", "Credit OK ")**. This command is easier to program and executes faster, but you're restricted to one data value for true and another data value for false; a series of commands—such as those used to change colors, display a warning, and change the colors back again—isn't possible.

Because the IIF() function is contained in a single line, it isn't restricted to PRG programs, as is IF. There's no way, for instance, to put an IF command in the Columns Contents option of a report, but IIF() fits in nicely, letting you vary what you print according to the contents of a field (see **FIGURE 1**).

IIF() can even be used in indexes. If you want a customer list alphabetized by name, with the bad credit accounts at the top, you can **INDEX ON IIF(CredStatus = "N", "0", "1") + LastName + FirstName to CREDMGR**. Index keys for 'N' accounts will start with 0 and all the others with 1, putting customers with bad credit first. *dBASE* will maintain this index as it does any other.

If you master IF and IIF(), your applications will appear smarter. And *if* that makes your work more productive, you'll reap the rewards.

Alan Schwartz is a contributing editor for PC World. *Celeste Robinson is the author of* The Best Book of Paradox *(Howard Sams and Co., Carmel, Indiana, 1990).*

Intelligible Reports

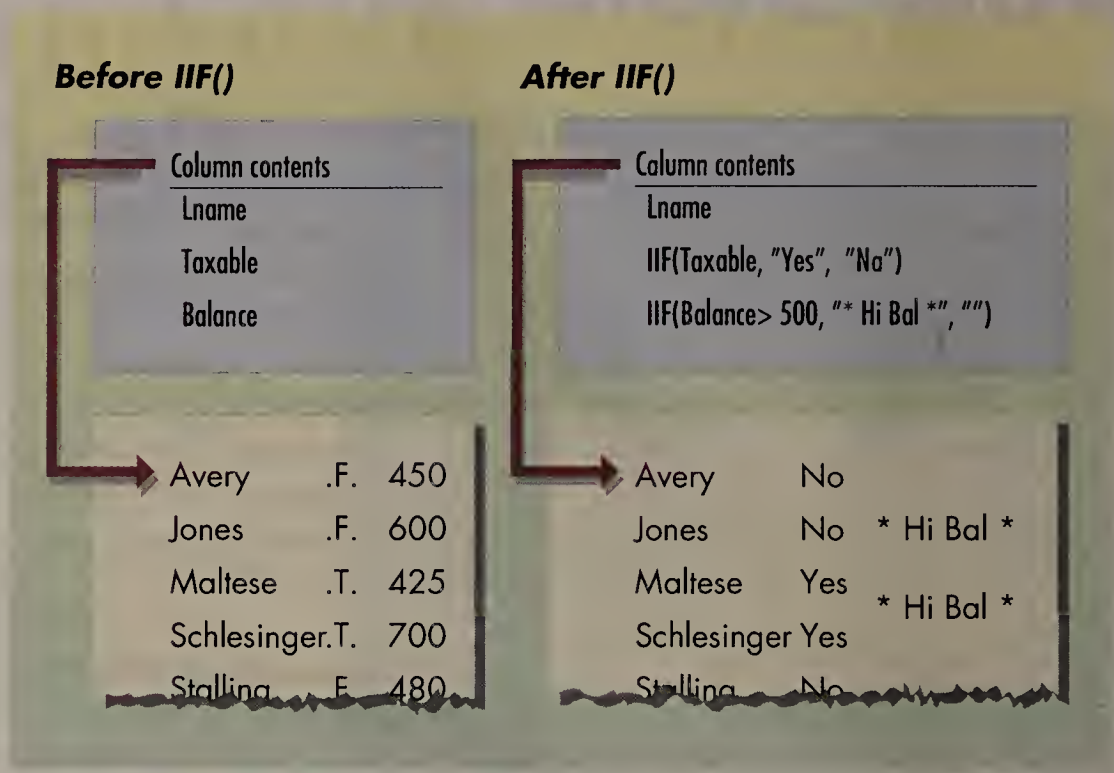

FIGURE 1: Report forms yield more readable results when helped by the IIF() function. The true/false Taxable field can show Yes or No rather than .T. or .F., while the numeric Balance field can print a warning flag rather than a less informative number.

PARADOX SHORTCUT

Speeding Data

Celeste Robinson

Paradox is pretty fast, but it could always be faster. Here are a few things you can do to maximize its performance:

- Don't put too many fields in a table. If one table has more than 15 or 20 fields, put the extras in a separate table.
- Give *Paradox* as much conventional and expanded memory as you can. If you use your own caching program, you may want to turn *Paradox*'s caching off by playing the Custom script.
- Set up primary indexes on your tables whenever possible. Also, create secondary indexes for non-key fields that you search on.
- If possible, limit the files in your *Paradox* work directories to 50 or 60. Never have more than 100 files.

Since *Paradox* does a lot of disk accessing, a fast, unfragmented hard disk helps too.

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INTRODUCING

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New FoxPro

Shifting the Balance Of Power in Database Management

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The Art of Persuasion

Publishing & Graphics

Expert advice for creating high-impact documents and presentations

This month: adding graphic emphasis with text, and renaming soft fonts in Windows

Richard Jantz

Just because you can't afford to add color, fancy graphics, or exotic fonts to a document doesn't mean it has to be dull. By using text to create graphic elements, you can liven up your document while enhancing its message.

The most obvious way to use text graphically is to use headlines, or *heads* —big, boldface titles that identify content and grab the reader's eye. In past columns, we've offered tips on using heads, as well as white space and rules, to improve the look of a document. This month, we'll focus on other text devices that increase a document's appeal and accessibility. Although these tips are especially useful for creating newsletters, most can also be applied to reports, proposals, and other business documents.

Here's how to turn text elements into tools of emphasis:

- To help readers quickly categorize a story, use a *kicker*—a brief label such as "Cover Story" or "Market Trends." Kickers usually sit above the headline, separated by a rule, and are set in a contrasting typeface, style, or capitalization scheme. With a 36-point Helvetica bold head, for example, use a 12-point Times Roman kicker set in small caps.
- *Tag lines*—brief phrases that provide more information about the text—draw readers into an article. Place tag lines below the headline, using the same typeface but in a different style and size. Use a 22-point bold italic tag line, for example, between a 33-point bold head and 11-point roman text.
- Use *subheads* to identify different subtopics within the text. Set subheads slightly larger than body text, using a different typeface, type style, or capitalization scheme (for example, 14-point bold subheads with 12-point roman text). For additional emphasis, add an extra line space above subheads and place rules below.
- To set off major sections of text, use an *initial cap* (an enlarged capital letter). You can choose either *raised caps* (aligned along the bottom edge of text) or *dropped caps* (aligned at the top), but use one style consistently throughout a document.

Set initial caps in bold and at least twice as large as body text, using the

NUTS & BOLTS

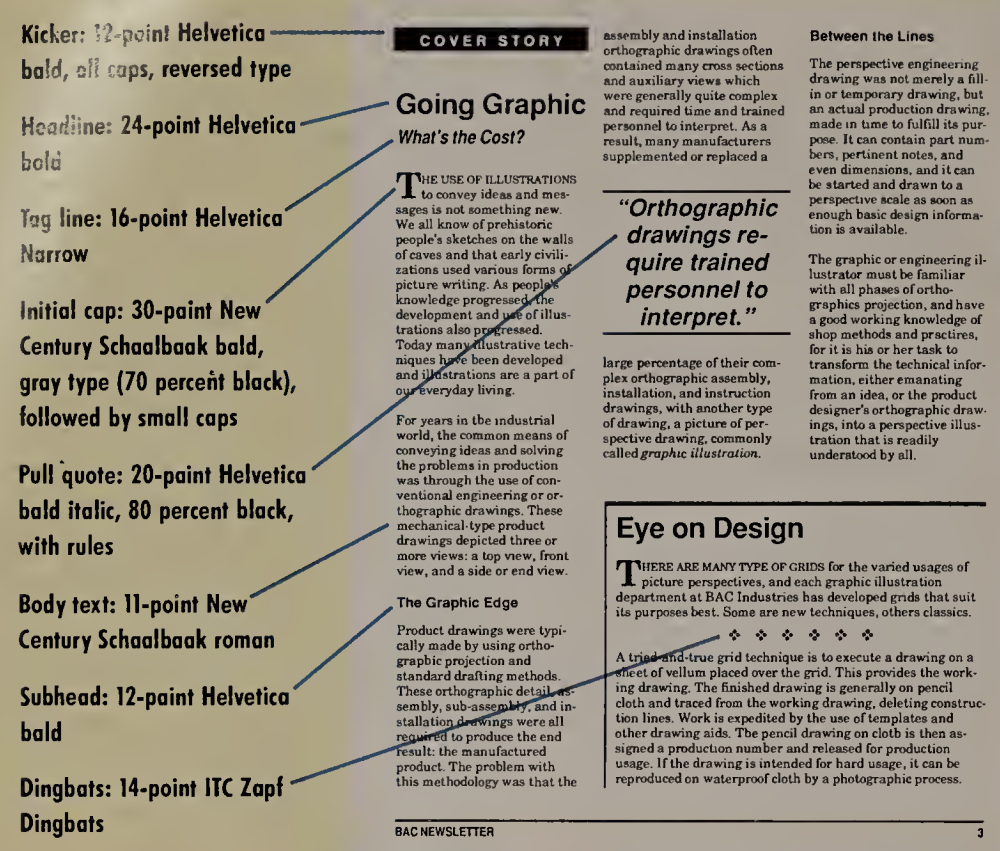
Renaming Soft Fonts in Windows 3.0

If you use LaserJet soft fonts in *Windows 3.0*, renaming some fonts (especially custom fonts) makes it easier to identify them and use them inside applications. For instance, you can change "Swiss II," *Windows'* default name for a Bitstream soft font that includes both light and heavy versions of Swiss, to "Swiss Light/Black." Here's how to rename a soft font in *Windows* using the Control Panel's Printer Font Installer.

1. Start *Windows 3.0* and select *Control Panel*, then *Printers*.
2. Select *PCL/HP LaserJet* (the active printer), and click the *Configure* button.
3. Click *Setup* and *Fonts* to open the Printer Font Installer window.
4. Select the fonts you want to rename from the font list, and click *Edit* to open the Edit window.
5. Type the new name in the 'Name:' box. Change 'Swiss II' to **Swiss Light/Black**, for example.
6. If you've selected more than one font, click *Edit mode* to apply the name change to the selected fonts, then *OK*.
7. Finally, click *Exit* and then *OK* three times to return to the Control Panel.

Now when you choose fonts in *PageMaker*, *Ventura*, *Word*, or other *Windows* applications that use LaserJet soft fonts, the renamed fonts will be displayed.
—*R. J.*

Turning Text Into Tools of Emphasis



You don't need fancy graphics or flashy fonts to make your documents visually exciting. The most powerful visual element in a document can be the text itself. Tools such as kickers, tag lines, subheads, and pull quotes not only give the text a lively, more professional look, they help to emphasize its key points—making your documents impossible to ignore.

same typeface as that used for either the text or the head. For example, combine a 36-point Palatino (or Helvetica) bold initial cap with 12-point Helvetica text and a 48-point Palatino bold head. To help smooth the transition to normal text, use small caps for at least part of the first line of text following an initial cap.

- Use *pull quotes*, or *decks*—short text excerpts set large—to break up text and to highlight key points. Place pull quotes in the middle of a column for newsletters, and in the margins of business documents. Set pull-quote text about three times as large as body text, using a contrasting typeface or style (such as bold or italic). For added emphasis, set the pull quote off with rules or inside a box.
- Separate unrelated text items in the same column with *dingbats*—decorative characters such as stars, check marks, and arrows. Set dingbats in bold and use a point size slightly larger than the text. Good typeface picks are ITC Zapf Dingbats or Carta, but you can also use the symbol character sets provided with most publishing applications.
- Use *reversed type* (white type printed over a black area) to enliven brief text items, such as a kicker, subhead, or initial cap. To ensure readability, use a bold typeface set at 12 points or larger.
- Another way to add "color" to a black-and-white document is to use gray type (type screened at less than 100 percent black) for small amounts of text, such as a head or an initial cap. To ensure that the type is readable, stick with large bold typefaces screened at 50 percent black or higher.

Finally, don't overuse these text devices, especially on a single page. Always strive for the proper balance when using these and other graphic devices to enhance a document.

PC World *contributing editor Richard Jantz is the author of* Ventura for Windows 3.0 *(John Wiley & Sons, New York, 1990).*

DESKTOP PUBLISHING TOOLBOX

Pub-Star I

The fastest way to prepare a lengthy or complex document for *Ventura* is to preformat it with a word processor. Insert style sheet tags and typographic codes, and the document formats instantly when you open it in *VP*. But typing long code strings and trying to remember which tag goes where can be a pain. Now *Pub-Star I*, an electronic crib sheet, comes to the rescue.

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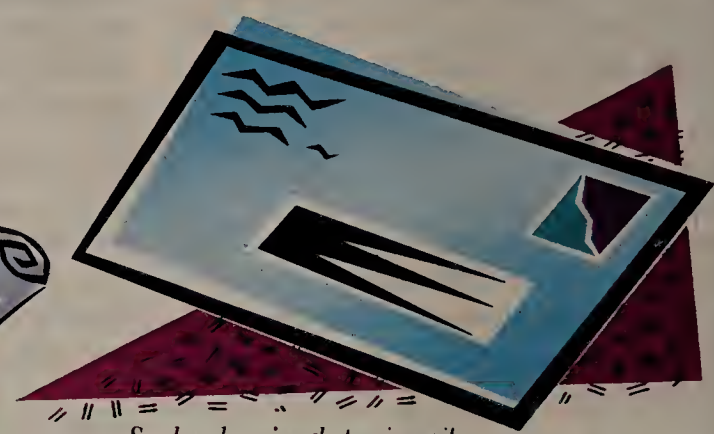

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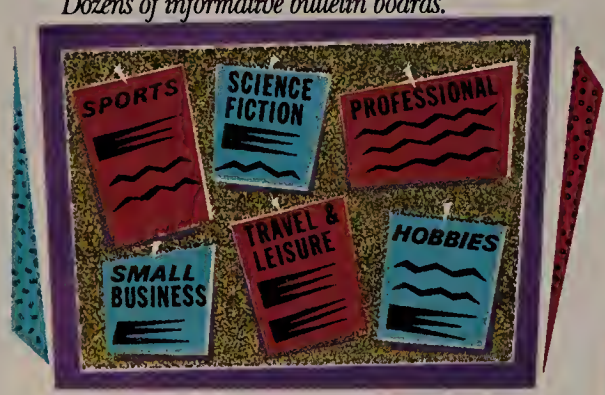

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The Information Edge

Communications

On-line resources for business and professional users

This month: Business Connection provides instant access to commercial data on millions of companies; Trademarkscan saves you time and money looking for a catchy product name

Judy Heim

Do your salespeople need fast background on a company prior to making a pitch? Does your market research team need a way to scope out a competitor's bottom line? Do you want to research that mutual fund a little more closely prior to buying its stock? Imagine an on-line service that lets you gather a vast amount of information on products, markets, companies—even whole industries—quickly and easily. You've just imagined Dialog's Business Connection. And unlike most Dialog data bases, notorious for their forbidding user interfaces, Business Connection is easy to use.

Nor is Business Connection outrageously expensive. Even with its $94-an-hour access charge, Dialog's $35 annual subscription fee, and surcharges for special features, it should cost you no more than $50 to $100 to download all the available information on a company.

The first thing you see when you log into Business Connection is a menu listing the service's four sections: Corporate Intelligence, Financial Screening, Products and Markets, and Sales Prospecting.

Corporate Intelligence is probably the most helpful section for general business users, because it offers the broadest selection of data on individual companies. You start by entering a company name (or ticker symbol). A menu appears from which you can chose to see information on location, internal financial reports, stock activity, acquisitions, products, news items featuring the company, and much more. The menu choice Composite Report gives you a prepackaged, eight- to ten-page, double-spaced synopsis.

Financial Screening focuses on fiscal data. Say you're looking for all the defense contractors on the East Coast with assets over $1 billion. You start by selecting criteria like industry, location, company income, stock price, and so on. Business Connection tells you how many companies fit the profile. Then you can compile names, addresses, telephone numbers, net income, sales, number of shares, assets, liabilities, and more.

The Products and Markets menu enables you to scout out all the purveyors of a given product (melons, say, or baseball cards), research each company's market share, procure general information on the market, and read analysts'

ON-LINE TOOLBOX

Punching Up Crosstalk With ZMODEM

Feeling punk because your copy of *Crosstalk* doesn't include the latest, super-fast error-correction protocol ZMODEM? There's an easy way to add it. Download a copy of Omen Technology's *DSZ* from an on-line service or BBS (scan for DSZ0626.ZIP) and copy it to the directory where you keep *Crosstalk*. Then log on to that directory and unzip DSZ0626. Now, write two batch files: DZ.BAT contains the line **DSZ t**, and UZ.BAT contains the single line **DSZ sz %1 %2 %3 %4 %5 %6 %7 %8 %9**. Then load *Crosstalk* and type the following, pressing <**Enter**> after each line:

F1 @ RUN / DZ
F2 @ RUN / UZ
SAVE STD.XTK

Now whenever you're on line and want to perform a ZMODEM download, simply press <F1>. To perform a ZMODEM upload, press <F2>. That's all there is to it. (For information about using *DSZ* with *Procomm*, see *Star-Dot-Star*, p. 273.) *DSZ* is $20 shareware, available from Omen Technology, P.O. Box 4681, Portland, OR 97208; 503/621-3735 (fax), 503/621-3746 (BBS). —*J. H.*

Reader service no. 750

THE PROFESSIONAL EDGE

Tracking Down Trademarks

Jordan J. Breslow

A rose by any other name may smell as sweet, but call it a "Type R Floral Unit" and it may not *sell* as sweet. A clever name for a product or service (legally, a *trademark* or *service mark*) is indispensable to healthy sales and market identity. That's why trademarks are exclusive: In most cases, if someone is already using a trademark, no one else can touch it.

If you're trying to think up a name for a new product, Trademarkscan, a dial-up data base available on Dialog, can save you time and money. It catalogs all trademarks and service marks registered with the U.S. Patent and Trademark Office and with trademark offices in all 50 states and Puerto Rico. It even lists *pending* federal trademark applications. Trademarkscan can thus provide a quick answer to the question, Is my clever new name already taken?

Because a trademark can be owned without being registered—trademark ownership is established when a mark is *used*—a search through Trademarkscan won't give you a definitive answer. For that, you'll have to pay a trademark attorney and/or a trademark search service to conduct an exhaustive hunt. However, Trademarkscan makes a useful preliminary screening tool. By using it to eliminate names that *are* registered, you can limit the number of names you pay the search service to check out.

Trademarkscan offers a powerful package of features. You can narrow searches to trademarks that apply only to certain kinds of good or services, or that are owned by particular companies. Moreover, Trademarkscan's clever cross-referencing, foreign language translation, and indexing functions will uncover close matches as well as exact ones—trademarks that look or sound like your intended name or convey the same overall impression.

Regrettably, Trademarkscan's power comes at a price: a beastly user interface with nothing but a question mark for a prompt. Worse yet, there's no on-line help. The manual is decent, but most users will want to budget $100 for a training session.

The cost of a trademark search depends on a number of factors. Logging onto Trademarkscan costs $140 an hour, plus Dialog's $35 annual fee, and there's a charge of 50 to 85 cents for every trademark record displayed on your screen. Nonetheless, most searches can be completed for under $50.

If you also want to look at logos, there's a $2.60 surcharge for each one—plus you'll need Dialog's $149 communications package, *DialogLink*. Moreover, the absence of a logo indexing system limits your ability to search for all trademarks that contain dragons, for example, or typewriters.

Anyone who needs to perform trademark searches—business owners, marketers, even trademark lawyers—will find Trademarkscan well worth the cost and the trouble to learn.

Trademarkscan, Thomson & Thomson, 500 Victory Rd., North Quincy, MA 02171-1545; 800/692-8833
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reports and forecasts for the industry.

Finally, Sales Prospecting lets you troll for potential customers in a Dun & Bradstreet Market Identifiers data base that includes 2.3 million companies in the United States.

There are two problems with Sales Prospecting, however. First, it's relatively costly. The service charges you $3 per extended record, and of course you must pay connect charges, too. The same information is available from Dun's own on-line service, Direct Access, for only 88 cents per record (with no additional connect charges). Moreover, the Market Identifiers data base on Dun's Direct Access is three times larger than the version offered on Dialog.

Yet, with the exception of the Sales Prospecting section, Business Connection is still a terrific deal, especially considering the cost of sending a company employee off to the library to gather this kind of information by hand. For businesses that need instant access to the most timely mercantile information, Business Connection is a must-have.

Judy Heim is a contributing editor for PC World, *and Jordan J. Breslow is an intellectual-property law attorney practicing in Oakland, California.*

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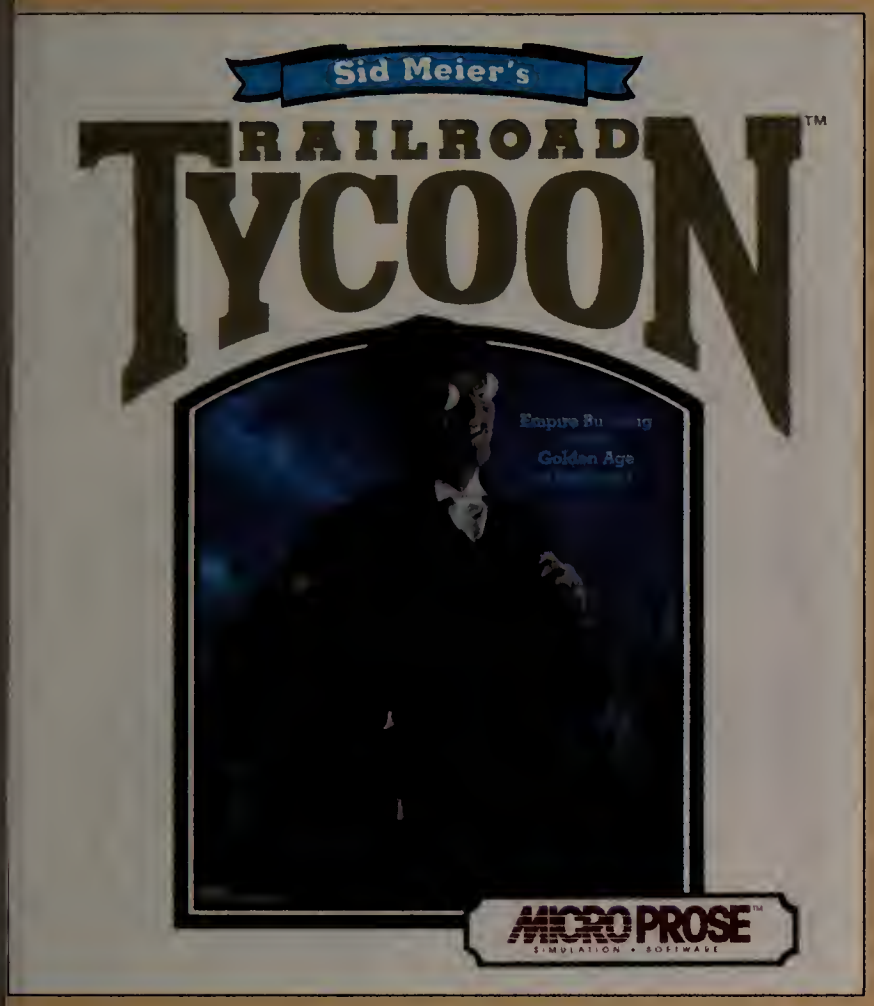

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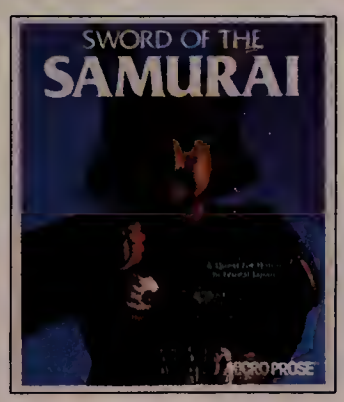

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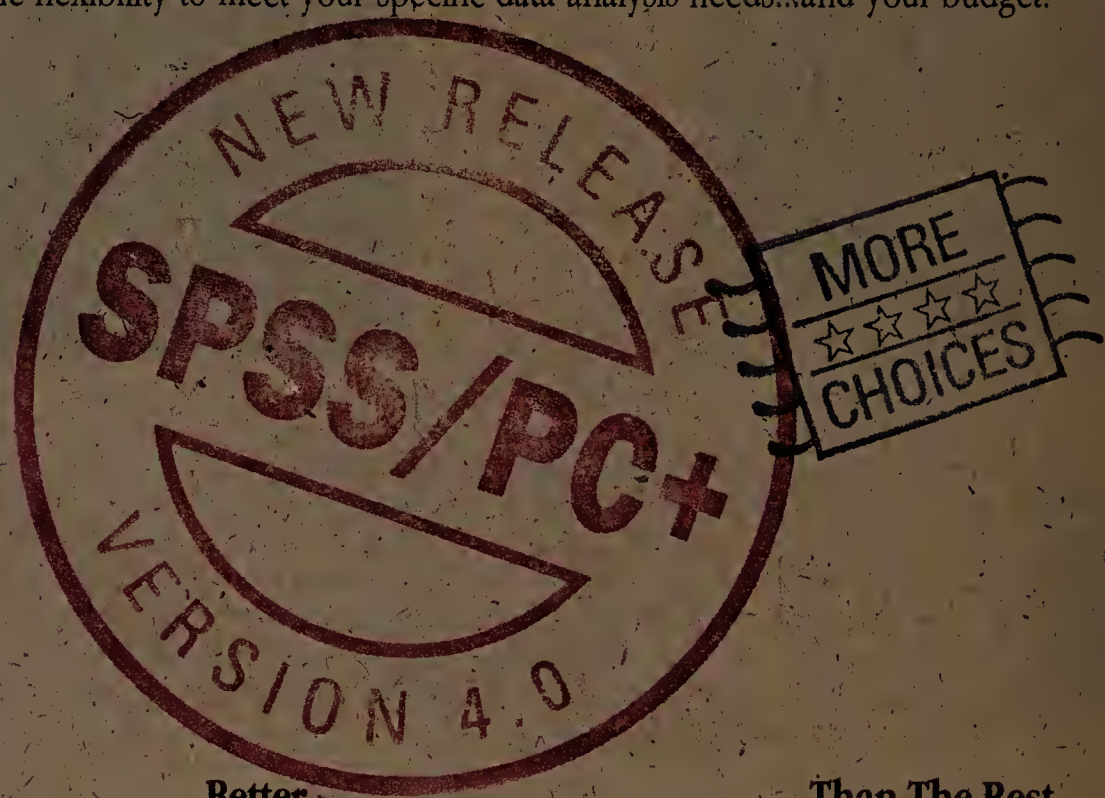

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User Group Tips

Helpful hints from members of the nation's user groups

Easy Numbering in Microsoft Word

Microsoft Word lets you rearrange numbered lists and renumber them automatically if you use a numbering convention recognized by *Word*. For *Word* to identify a number, it must be the first text character of a paragraph; it must be enclosed in parentheses or include a period; and it must be followed by a space or a tab—*Word* ignores leading tabs and spaces. Use one of the following formats: 1., 2., 3.; 1.1, 1.2, 1.3; a., b., c.; A., B., C.; i., ii., iii.; or I., II., III.

After moving numbered paragraphs, you can renumber them by highlighting all the paragraphs in your list, pressing <**Esc**>, and choosing *Library Number*. Accept defaults and press <**Enter**>. *Word* renumbers the selected numbered paragraphs and leaves any unselected or unnumbered paragraphs unchanged.

Bill Weil
San Francisco PC Users Group

Getting Extra Pages From Your Printer Ribbon

Some ribbons, such as the kind used on Epson MX/FX series printers, are exposed almost the full length of the platen. If you examine them closely, you'll notice that the pins of the printhead strike the ribbon just below the centerline. One day I was reinserting a ribbon between the printhead and platen of my printer, and I accidentally gave it a half twist. It occurred to me that since the ribbon was now upside down, the printhead would strike the ribbon on the part that used to be above the centerline. With this trick, I've been able to get extra use out of otherwise spent ribbons. Unfortunately, this tip doesn't work for printers with small cassettes that expose only a short piece of ribbon.

Bob Ward
Slo Bytes PC User's Group
Los Osos, California

An Elapsed-Time Counter for 1-2-3

Here's a neat way to use *1-2-3* to set up a log of the time spent on a project. Open a worksheet, and in an out-of-the-way cell —G1, for instance—type **@NOW**, and press <**Enter**>. Then press <**F2**><**F9**><**Enter**>. Now you have taken *1-2-3*'s present-time reading, converted it to its underlying value, and established a starting time.

If you look at the status line, you'll notice that *1-2-3* gives you a five-digit number followed by a series of decimals. That is *1-2-3*'s way of calculating the number of days that have passed since the start of the twentieth century. By using this mode of measurement, *1-2-3* can add and subtract times as it does other numbers.

Now start a timer running—move the cursor to a nearby cell (G2, say), type **@NOW**, and press <**Enter**>. With this completed, you can work within your worksheet, or save it and work on something else. When you're ready to measure the elapsed time, return to the worksheet and move your cursor to cell G2. Convert the contents of the cell to its underlying value using the process described above, and subtract G1 from G2. Divide the result by one of the following values to determine the elapsed time: 1 hour = 0.0416666667, 1 minute = 0.0006944444, 1 second = 0.0000115741. For example, the following formula determines the number of hours elapsed: **@SUM(G2-G1)/(0.0416666667)**. Of course, your system clock has to be functioning properly for this tip to work.

Roy Rosfeld
Capital PC User Group

Are you a user group member with a tip to share? Send it to User Group Tips, PC World, *501 Second St. #600, San Francisco, CA 94107; CompuServe 74055,412; MCI Mail PC World Editorial; or 415/442-1891 (fax). We pay $50 and throw in a* PC World *T-shirt for each tip we use—and you get to see your name in* PC World.

POWER TIP NO. 149

LaserJet Toner Down but Not Out

If your LaserJet printer turns out pages with vertical streaks on them, you're running out of toner. But you don't have to throw the toner cartridge away just yet. Take the cartridge out of the printer, hold it by the handle and the opposite side, and rock it gently back and forth several times to redistribute the toner. You should be able to print several hundred more copies.

Ted Nace
Author, LaserJet Unlimited
Berkeley, California

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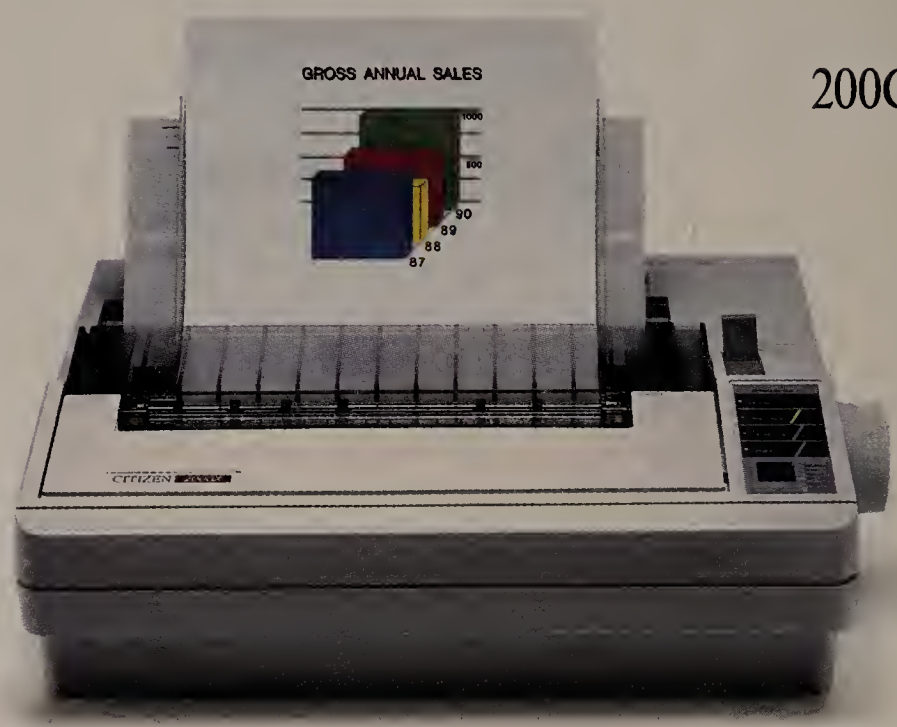
GSX-140

Encore!



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When you want a color printer that creates the right impression, there's only one choice: the award-winning dot-matrix line from Citizen. The 24-pin GSX-140 was judged *InfoWorld's* "Best in its Class" and "Excellent Value," and *Home Office Computing's* "Editor's Pick." With this impressive track record, it's now joined by the 9-pin 200GX.

INFO WORLD BEST IN ITS CLASS Oct. 2, 1989

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Speed up Procomm Plus host-mode file transfers, save data by fooling dBASE, send keystrokes from batch files to programs via Turbo C, easily change text formatting in WordPerfect, and set sail with a visionary tool for object-oriented programming.

Edited by Tom Swan

File Transfers From A to ZMODEM

In the May 1990 *Help Screen*, a reader asked about using *DSZ*'s speedy ZMODEM protocol with *Procomm Plus*'s host mode. Though ZMODEM isn't built into host mode, it is possible to use it. Here's how:

First, create a batch file called ZDOWN.BAT [see **LISTING 1**] in *Procomm*'s directory. Next, modify the PCPLUS.USR file by giving the caller a security level of **1**, thus allowing him or her to shell to DOS. (The "caller" could be you if you are accessing your home computer from the office.)

Before anyone can use ZMODEM on the remote system, you must have it listed as an external protocol in *Procomm*. To access the external protocol section of the Setup menu, press **<Alt>-SP**, and specify the **zup** [see **LISTING 2**] and **zdown** batch files as external protocols.

After establishing the connection—with *Procomm* in host mode—the remote user should choose *Shell to DOS* from the menu. Once the DOS prompt appears, the user should type **zdown** and press **<Enter>**. At this point, the ZDOWN batch file executes *DSZ* and waits for the file transfer to begin. The caller can then press **<Page Up>** and upload a file specifying a protocol, as demonstrated by the sample ZUP.BAT.

When the file transfer is finished, ZDOWN.BAT issues an EXIT command to return from the DOS shell, and the caller is returned to the host-mode menu. From here it's possible to repeat the process, log off, or perform another operation.

There's an easier way to transfer files with *DSZ*, one that doesn't require *Procomm:* a batch file called TALK.BAT [see **LISTING 3**]. Each computer must have a copy of that file plus *DSZ*.

Change 'port 2' and 'com2' in TALK.BAT to the COM port number your modem uses, and change '2400' to the speed of the slower of the two modems involved. Once you are connected, type **talk** and press **<Enter>** on one computer (it doesn't matter which) and **talk sz** *\directory\filename***<Enter>** on the other. This puts *DSZ* into terminal mode so that you can enter standard Hayes AT commands.

Since the phone is still in voice mode, you and your remote partner can easily decide when to begin the transfer. When you're both ready, one of you should type **ATA** and press **<Enter>**, while at the same time the other types **ATH101** and presses **<Enter>**. This places the modems on line (you'll hear the familiar high-pitched squeal). Both sides will then see 'CONNECT' and the baud rate on their screens, indicating that the modems are communicating. The sender should then press **<F1>**, causing *DSZ* to exit from terminal mode and start the upload.

When the file transfer is complete, the sender's batch file hangs up the modem. By the way, the telephones need not be on hook during file transfers, as *DSZ* efficiently deals with noisy phone lines—a condition that's similar to having the phone off the hook. You can also

(continues)

```
dsz rz \directory
exit
```

LISTING 1: ZDOWN.BAT runs DSZ for file transfers using Procomm Plus.

```
dsz sz %1
```

LISTING 2: Use ZUP.BAT for file uploads from Procomm Plus.

```
dsz port 2 speed 2400 d t D %1 %2
echo ~~~+++~~~ath0 >com2
```

LISTING 3: With DSZ, even Procomm isn't needed for file transfers, as this sample TALK.BAT macro illustrates.

ANTHONY RUSSO

use wild cards in the file name, simplifying batch transfers. These tricks are not documented by *DSZ*, but they've proven to be useful.

Michael MacDonald
Seattle, Washington

Editor's note: Use this tip with caution. If you set a security level of 1 for a user, allowing DOS access, you risk that user deleting files and fouling up your system.

It's best not to leave the phones off the hook during file transfers. Though ZMODEM can recognize and correct most transfer errors, it takes time to do so. Also, the probability of a stray bit penetrating the protocol's defenses, while small, is not zero. In most cases, cleaner connections lead to faster, more reliable transfers.

For these batch files to work, DSZ *must be either in the* Procomm *directory or in a directory in the path.* DSZ *is a shareware program available on most large bulletin boards. (For information about using* DSZ *with* Crosstalk, *see "On-Line Toolbox," p. 267.)*

Losing Your Memo

As I found out the hard way, *dBASE* won't load a data file with a memo field if the DBT file is corrupted or missing. If

(continues)

DEVELOPER'S TOOLBOX

OOP Ahoy

Remember OOP, the object-oriented tune that all the king's sailors were singing a few months back? What happened to it? Was it a mere blip on the charts of the Good Ship Programming?

Hardly. After the initial swell subsided, programmers divided into three schools: those who learned OOP's ropes and then returned to their old habits, those who ran aground along OOP's tricky waterways, and those who mastered OOP and piloted their programs with objects.

Developers in the first two categories should row to their local software distributor and reel in a copy of *ObjectVision*. This program is as seductive as a siren at sea. Like a spreadsheet for programmers, *ObjectVision* lets you play what-if with objects: You can design programs by drawing them in a graphical interface similar to that used by *Microsoft Windows*. Once you're hooked by its charms, you'll never want to weigh anchor for new OOP adventures without a copy safely stowed away on disk.

Because of its graphical nature, *ObjectVision* requires a mouse. At first I had some trouble using my Microsoft Mouse, but the problem turned out to be related to the mouse driver (version 7.04). Switching to an older driver (version 6.10) fixed the glitch. The company is aware of the bug and is working on repairs.

ObjectVision lets programmers design object-oriented code using graphics and a mouse, as this sample simulation demonstrates.

Designing code with *ObjectVision* is as easy as sailing with the current. To create methods and instance variables—that is, procedures, functions, and data fields—you simply point and click, and type a few lines of code using the program's custom procedural language.

During this phase, you can use a built-in browser to view object relationships, or you can flip on a unique 3-D display. This gives you an underwater view of your program's organization, showing what lies beneath the surface of a multilevel design. It's like having a treasure map that not only shows where to find buried riches in code but tells you how to open the chests to reach the doubloons within.

(continues on page 280)

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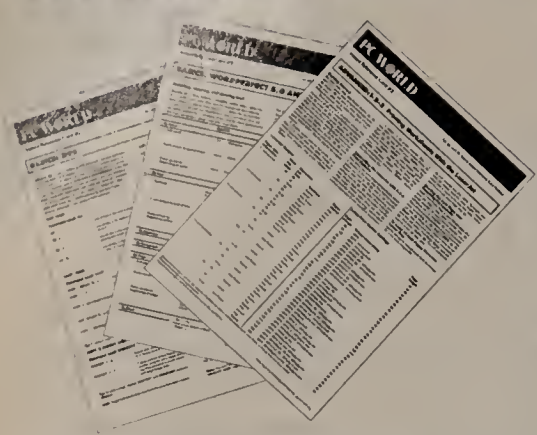

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```
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w
q
```

LISTING 4: These DEBUG keystrokes recover dBASE files with damaged memo fields.

you lose some of your data (the memo field), you lose all of your data.

After this happened to me, I investigated the contents of data files with and without memo fields. I discovered that the first byte of a file contains the hexadecimal value 03, except when a memo field is present, in which case the byte is 83. Changing that byte to 03 fools *dBASE* into believing that this data file has no memo fields. You can then load the altered file to recover the lost data—minus the memos, of course.

You can make the change with DEBUG and an ASCII text file called PATCH.DAT [see **LISTING 4**]. To recover a file, type **debug** *file*.**dbf < patch.dat** at the DOS prompt, where *file*.dbf is the data file that's missing its associated DBT memo text. You can then load the file and recover its contents.

Anurag Garg
Bareilly, India

Editor's note: Try this on a sample file called TEST.DBF before using it to recover real data. First, create a small test data base with one or two character (or other) fields and one memo field. Enter a few sample records, and save.

To simulate a corrupted-memo-file error, quit to DOS and delete TEST.DBT. (First make a copy of that file if you want to repeat the test.) Restart dBASE *and type the dot-prompt command* **use test.** dBASE *will refuse to load the file.*

Quit back to DOS again to create the patch. Make sure that PATCH.DAT is in the current directory and that DEBUG.EXE is either in the directory or on the path, then enter **debug test.dbf < patch.dat.** *Start* dBASE *once more, and try to load TEST.DBF. This time* dBASE *will read the file. However, it will display an error message or even freeze up if you try to edit a memo field. To prevent this from happening, use* **modify structure** *to remove the memo field from the file's structure as soon as you can successfully open the file.*

Hands-Off Key Scans

I have more macros than I can remember, many of which are run from the DOS prompt. To help me run them from batch files (which are easier for me to recall by name than by keystroke), I developed a *Turbo C* program, GOKEY.C [see **LISTING 5**]. The program can "press" keyboard keys to simulate the macro key assignments I use.

To use the program, first run GOKEY with no command-line arguments. The cursor will pause on a blank line. Press the key or key combination you want to automate, and note the value *(continues on page 282)*

```
#include <dos.h>
#include <stdio.h>
#include <stdlib.h>

#define  SEGMENT   0x0040
#define  BUF       0x001E
#define  HEAD      0x001A
#define  TAIL      0x001C
#define  UPDATE    0x0020
#define  SP        0x3920

main(int argc, char *argv[])
{
  int key, radix = 16;
  unsigned long int scan = 0;
  char *p;

  if(argc < 2)
  while
    ((key = bioskey(0)) != SP)
      printf("%X\n", key);
  else
    scan = strtoul(argv[1],
      &p, radix);
  poke(SEGMENT, BUF, scan);
  poke(SEGMENT, HEAD, BUF);
  poke(SEGMENT, TAIL, UPDATE);
}
```

LISTING 5: This Turbo C program, GOKEY.C, can "press" any key by using its scan code.

PC WORLD

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BASICS: PROCOMM PLUS

SETUP

What to do: Before going on line, use these commands to set up your communications session. Then use the dialing commands to automate your calls, and the on-line commands to control the session once you've logged on. Before setting communications parameters, check with the on-line service or BBS for its requirements. **Note:** All these setup commands can also be issued while you're on line.

Function	Keystrokes
Get help	**<Alt>-Z**
Program setup	**<Alt>-S**
Set communications parameters	**<Alt>-P**, press keys for desired settings, **<Alt>-S**
Set terminal emulation	**<Alt>-STGA**, select desired emulation, **<Enter> <Esc><Esc>S<Esc>**
Set modem to auto-answer	**<Alt>-Y**
Turn off auto-answer	At the Terminal screen, enter **ATS0=0**, **<Enter>**
View an ASCII file	**<Alt>-V**, enter file path and name, **<Enter>**
Edit an ASCII file	**<Alt>-A**, enter file path and name, **<Enter>**
Display dialing directory	**<Alt>-D**

DIALING

To use the commands below, make sure you're in *Procomm Plus*'s dialing directory. (Press **<Alt>-D** if you're not.)

Move to new dialing entry	**<Cursor Up>/<Cursor Down>**
Move to new dialing screen	**<Page Up>/<Page Down>**
Move to beginning or end of directory	**<Home>/<End>**
Jump to an entry number	**G**, enter entry number, **<Enter>**
Search for an entry	**F**, enter text or phone number, **<Enter>**
Repeat search	**A**
Add a directory entry	Select blank entry, **R**, enter field data (or select from list), press **<Enter>** after each field
Change a directory entry	Select entry, **R**, enter data in field (or select from list), press **<Enter>** after each field
Delete a directory entry	Select entry, **E<Enter>**
Create or switch to alternate dialing directory	**X**, enter file name, **<Enter>**
Dial an entry	Select entry, **<Enter>**
Dial manually	**M**, enter phone number, **<Enter>**
Queue dialing	Select entry, **<Space>**, repeat for other entries, **<Enter>** to dial all

Note: The queue function dials entries until one of them connects—a handy feature for logging on to busy BBS's. If you do connect, *Procomm Plus* won't automatically dial the next number once you hang up, but it will highlight the next number. Simply press **<Enter>** to dial it. *Procomm Plus* dials the entries in order by directory number, not in the sequence you specify.

Create dialing code	**P**, select blank entry, **R**, enter dialing characters, **<Enter><Esc>**
Attach dialing code to directory entry	Select entry; **R**; **<Enter>**; at NUMBER: field, insert code before or after phone number; press **<Enter>** 12 times

DIALING (continued)

Note: Each dialing code is a single letter that represents a string of dialing characters such as a long-distance credit card number or the "9,1" prefix commonly used to get outside a PBX.

Tip: If you start every call with the same dialing sequence, add it to the end of your dialing command instead of assigning it to a dialing code and inserting that code before every dialing entry: From the Terminal screen, press **<Alt>-SMGB<End>**. Add the dialing sequence, and press **<Enter> <Esc><Esc><Esc>**.

ON LINE

What to do: Once you're on line with a service, use these commands to control your session.

Function	Keystrokes
Capture screen to file	**<Alt>-G** (screen is appended to PCPLUS.SCR)
View screen capture	**<Alt>-VPCPLUS.SCR<Enter>**
Capture session to file	**<Alt>-<F1>**, enter file name, **<Enter>**
Pause/restart session capture	**<Alt>-<F2>**
End session capture	**<Alt>-<F1>**

ON LINE (continued)

Capture to printer	**<Alt>-L** (to turn off printing, press **<Alt>-L** again)
Clear screen	**<Alt>-C**
Pause screen scrolling	**<Alt>-N**
Display capture buffer	**<Alt>-<F6>**, scroll with cursor keys or **<Page Up>/<Page Down>**
Search buffer for text	**F**, enter text, **<Enter>**
Send buffer to file	**W**, enter file name, **<Enter>**
Print buffer	**WPRN<Enter>**
Return to session	**<Esc>**
Check elapsed time	**<Alt>-T**
Send break signal (to interrupt incoming data)	**<Alt>-B**
Begin split-screen chat mode	**<Alt>-O**, enter message and press **<Enter>** to send (**<Esc>** to exit)
Temporarily exit to DOS	**<Alt>-<F4>** (enter **EXIT** and press **<Enter>** to return to session)
View directory of files	**<Alt>-F**, enter file specification, **<Enter>** (**<Page Up>/<Page Down>** to scroll, **<Esc>** to exit)
Begin ASCII upload	**<Page Up>4<Enter>**, enter file name, **<Enter>**
Begin binary upload	**<Page Up>**, select protocol, **<Enter>**, enter file name, **<Enter>**
Begin ASCII download	**<Page Down>4<Enter>**, enter file name, **<Enter>**
Begin binary download	**<Page Down>**, select protocol, **<Enter>**, enter file name, **<Enter>**
Abort file transfer	**<Esc>**
Hang up	**<Alt>-H**
Exit program	**<Alt>-X<Enter>**

Fold Here

Fold Here

PC WORLD

Instant Reference Card #6

For use with PC World Instant Reference Card Portfolio

ADVANCED: PROCOMM PLUS

ADVANCED SETUP

What to do: The options described below work both on and off line. To perform any of the following steps, press **<Alt>-S** to open the Setup menu.

Function	Keystrokes
Specify default directory for downloaded files	**FC**, enter drive and path, **<Enter><Esc>S <Esc>**
Assign file viewing program to hot key (<Alt>-V)	**FE**; enter program's drive, path, and executable file name or batch file; **<Enter> <Esc>S<Esc>**
Assign text editor to hot key (<Alt>-A)	**FD**; enter program's drive, path, and executable file name or batch file; **<Enter> <Esc>S<Esc>**
Assign other programs to hot keys (<Alt>-J, <Alt>-K)	**F**; **F** or **G**; enter program's drive, path, and executable file name or batch file; **<Enter><Esc>S<Esc>**
Create keystroke macro	**<Alt>-M**, select a blank entry, **R**, enter desired text (use **^M** in place of **<Enter>**), **<Enter>S**, replace name if desired, **<Enter><Esc>**
Delete all macros	**C**
Load keyboard macro file	**<Alt>-M**, **L**, enter file name, **<Enter> <Esc>**

Fold Here

ADVANCED SETUP (continued)

Note: The user hot keys described above can run any program, even utilities like *PKZIP*. Just press the appropriate hot key in *Procomm Plus*'s Terminal mode or while on line to jump to the program.

SCRIPTS

What to do: To automate log-ons and other common tasks, you can record scripts, or write them using *Procomm Plus*'s script language. **Note:** If you want to record a log-on script, do so as soon as you've connected to the service.

Record a script	**<Alt>-R**, supply file name with **ASP** extension, **<Enter>**, enter script keystrokes (**<Alt>-R** to end recording)
Edit a script	**<Alt>-A**, enter script name (press **<Insert>** for insert mode, press **<F1>** to add a line, press **<F2>** to delete a line, press **<F6>** to search for text, press **<F5>Y** to exit and save)
Execute a script	**<Alt>-<F5><Enter>**, select script with cursor keys, **<Enter>**
Abort script execution	**<Esc>Y**
Attach script file to directory entry	Select entry; **R**; press **<Enter>** seven times; at SCRIPT: field, enter script name; press **<Enter>** six times

Tip: To load a macro set automatically when you dial an entry, you can add an MLOAD command, such as **MLOAD "MCI.KEY"**, to the beginning of the entry's log-on script.

Script Commands

Procomm Plus's script language is rich, but in most scripts you'll probably use only these three commands:

SCRIPTS (continued)

Command	Function	Example
TRANSMIT	Sends text to service	**TRANSMIT "My-Password^M"**
WAITFOR	Waits for specified text sent by on-line service	**WAITFOR "CONNECT"**
PAUSE	Waits the specified number of seconds	**PAUSE 2**

Note: Almost all text sent with the TRANSMIT command must be followed by a carriage return character (**^M**).

TROUBLESHOOTING

What to do: Here are solutions for some common on-line problems.

Problem	Probable Cause	Solution
Modem won't dial	Modem power off	Turn modem on
	Phone line unplugged	Plug in line
	Phone in use	Hang up phone
	Incorrect COM port	**<Alt>-P**, select new port, **<Alt>-S**

Fold Here

TROUBLESHOOTING (continued)

Program hangs up before connect	Phone line busy	Redial
	'Wait for Connection' time too short	**<Alt>-SMGF**, enter longer wait time, **<Enter><Esc> <Esc>S<Esc>**
Empty dialing directory or none	*Procomm Plus* can't find directory file	**<Alt>-<F7>**, enter new path, **<Enter>**
Double characters or typed characters don't appear	Wrong duplex setting	**<Alt>-E**
Some incoming characters are dropped	Conflict with TSR program	Disable TSR
All text appears on single line	No linefeeds	**<Alt>-<F3>**
Double-spaced text	Extra linefeeds	**<Alt>-<F3>**
Garbled text	Wrong parameters (check requirements)	**<Alt>-P**, select new parameters, **<Alt>-S**
ASCII upload stalls	Binary transfer protocol selected, not ASCII	**<Esc>**, restart transfer with ASCII protocol
	Wrong ASCII transfer option settings	**<Alt>-SA**, change settings, **<Esc>S <Esc>**
Binary file transfer aborts	Protocols don't match	Restart transfer with correct protocol
	Too many errors in file	Hang up and redial
	Someone picked up phone	Secure phones, restart transfer
Modem hangs up unexpectedly	Call waiting	Contact phone company for info on disabling
Log-on script won't work	*Procomm Plus* can't find script file	**<Alt>-<F7>**, enter new path, **<Enter>**
	Service has changed log-on procedure	Edit script or record again

Tip: Most services and BBS's use N-8-1 (no parity, 8 data bits, 1 stop bit), but some, like CompuServe, prefer E-7-1 (even parity, 7 data bits, 1 stop bit).

For use with PC World Instant Reference Card Portfolio

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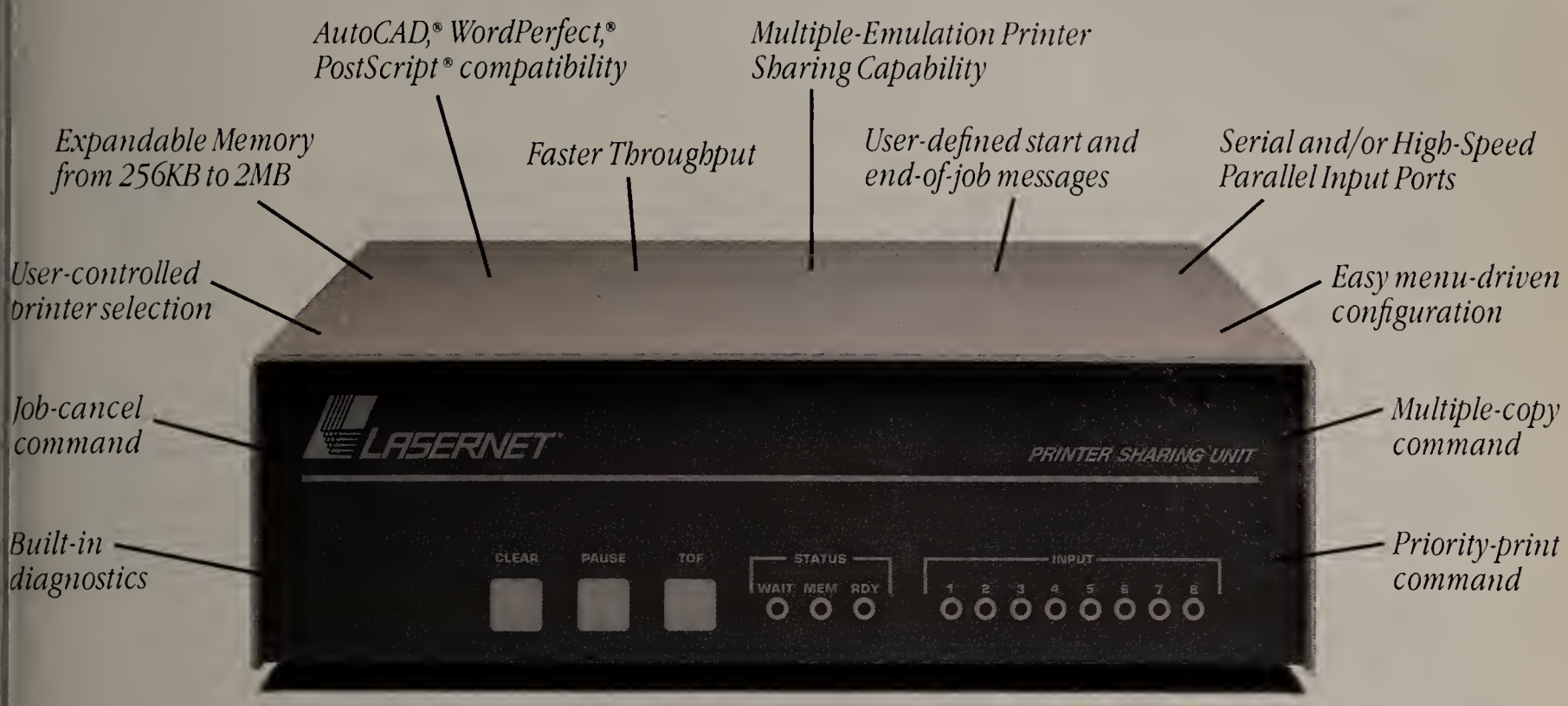

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Circle 325 on reader service card

DEVELOPER'S TOOLBOX

(continued from page 274)

When you're satisfied with a design, you can run it inside *ObjectVision* or—with the higher-priced edition—generate source code in *Turbo Pascal 5.5, Turbo C++, Zortech C++,* or *Glockenspiel C++*. *ObjectVision* can generate either full programs or only the programs' object classes, useful for prototyping empty OOP hulls that you'll reshape by hand later.

In addition to its value for general-purpose programming, *ObjectVision* is a superb tool for simulation and data base work. Sample programs include a simulation of water flowing between tanks, plus an order-entry data base. The program reads *dBASE* files, automatically converting them to objects.

ObjectVision has a few leaks. Its interface deviates from accepted standards, making some operations awkward. For example, instead of dragging and resizing windows, you have to draw outlines where you want windows to appear. The program also needs a wider selection of fundamental data types; it's currently limited to real numbers, integers, and strings.

ObjectVision Incorporated is developing a *Windows 3.0* version of the program, promised to be 100 percent compatible with files generated by the DOS release. This should go a long way toward improving the program's interface.

It took time for me to get my sea legs with *ObjectVision*. But after cruising with the program, I'm now planning to use it to help chart all my future OOP voyages.

Let's talk it over. My MCI Mail handle is TSWAN; my CompuServe ID is 73627,3241. —*Tom Swan*

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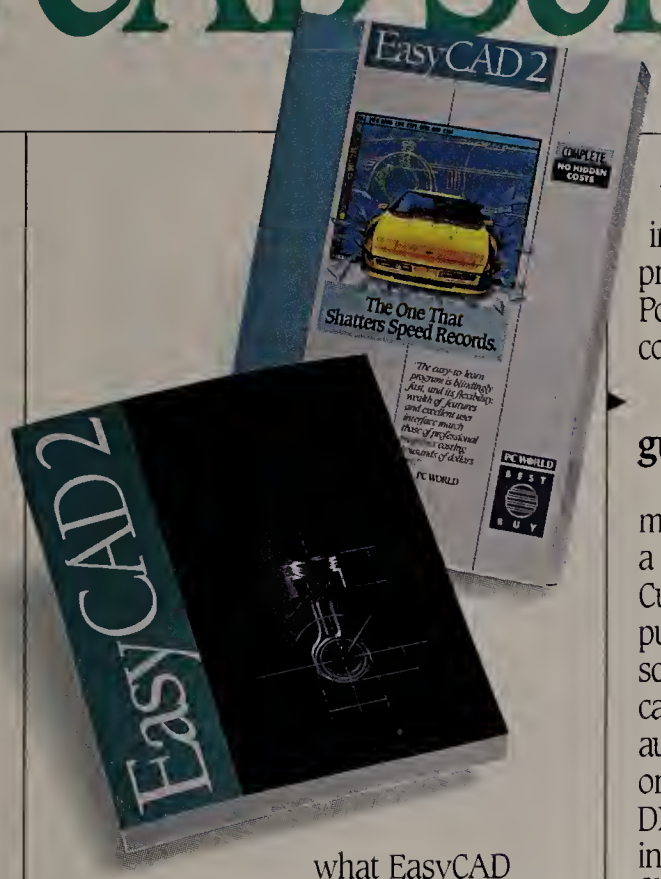

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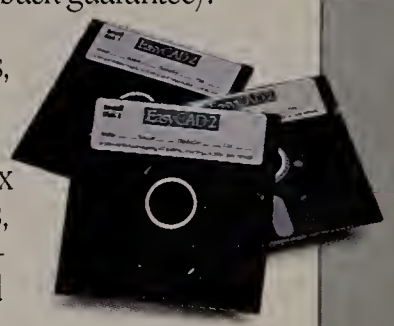

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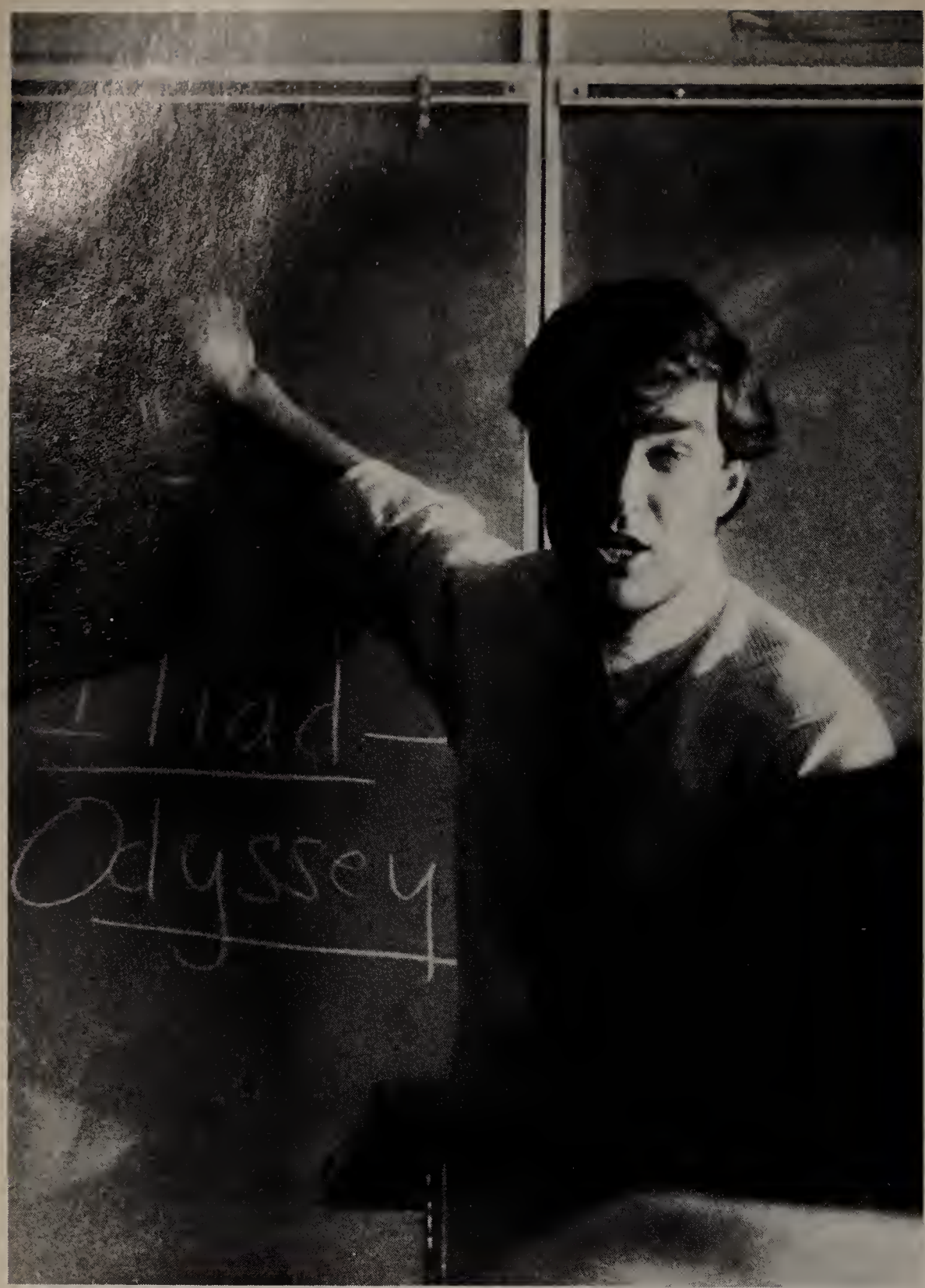

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that GOKEY reports. For example, pressing <**Alt**>-<**F8**> displays the hexadecimal value 6F00. Press <**Space**> to quit.

Next, insert the command **gokey** *value* into a batch file, just before the line that loads a program. When you run the batch file, it will insert the scan code into the type-ahead buffer and then run the program. When that program begins, its internal key-input routine will receive the inserted scan code. Any macro commands assigned to that key or key combination will then execute.

Charles Weeks, Jr.
Slidell, Louisiana

Editor's note: This program is especially good for passing function key values to programs. For instance, I created a small batch file called HELP-TC.BAT with the lines 'gokey 3B00' and 'tc'. Running this batch file starts the Turbo C *integrated environment and "presses" <F1>, opening* Turbo C's *help window—without any help from me.*

One caution: Because GOKEY inserts values directly into a fixed memory location, it may not work with programs that relocate the system's type-ahead buffer.

You Can Quote This

I often have to italicize words in *WordPerfect 5.1,* but I find it inconvenient to press function keys to do this. To make typing easier, I came up with a macro [see **FIGURE 1**] that helps me produce italic output. While typing, I surround target words and phrases with double quotation marks. When I'm done, I press <Ctrl>-I, and the macro hunts down all the double quotation marks in the document, replacing them with *WordPerfect* italic codes.

To create the macro, start *WordPerfect* and select *Setup Keyboard layout Map*. Move the cursor to the key or key combination you want to assign the

(continues)

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```
{DISPLAY OFF}
{Home}{Home}{Up}

{LABEL}loop~
{Search}"{Search}
{Backspace}
{Block}"
{Font}ai
{Left}{Backspace}
{GO}loop~
```

FIGURE 1: This WordPerfect 5.x macro converts quoted text to italics.

macro to, and select *Macro.* To insert basic editing commands, such as {BACKSPACE}, {LEFT}, and {DEL}, press **<Ctrl>-V**, followed by the appropriate editing key. For other editing or formatting commands, such as {SEARCH}, {BLOCK}, and {TO}, simply press the same keys you would to use the command when editing. Select macro-specific commands, like {DISPLAY OFF}, {LABEL}, and {GO}, from the **<Ctrl>-<Page Up>** macro command menu. Press **<F7>** three times to exit, and save the macro.

Horst Wetjen
APO, New York

Editor's note: You can adapt Mr. Wetjen's idea in order to change things other than quotes and italics. **FIGURE 2** *shows a variation that converts italics to bold. Because* WordPerfect *uses different codes to start and stop italics, and because neither code can exist without the other one, this macro must handle its searches and deletes in a somewhat different way than the quotes-to-italics macro does. Both of these macros will work with* WordPerfect *versions 5.0 and 5.1.*

Tom Swan is a contributing editor for PC World *and the author of several books, including* Mastering Turbo Debugger *(Howard W. Sams and Co., Carmel, Indiana, 1990).*

```
{DISPLAY OFF}
{Home}{Home}{Up}

{LABEL}loop~
{Search}{Font}ai{Search}
{Block}
{Search}{Font}ai
{Backspace}{Font}ai{Search}
{Bold}
{Left}{Backspace}y
{GO}loop~
```

FIGURE 2: A variation on FIGURE 1, this macro converts italics to bold.

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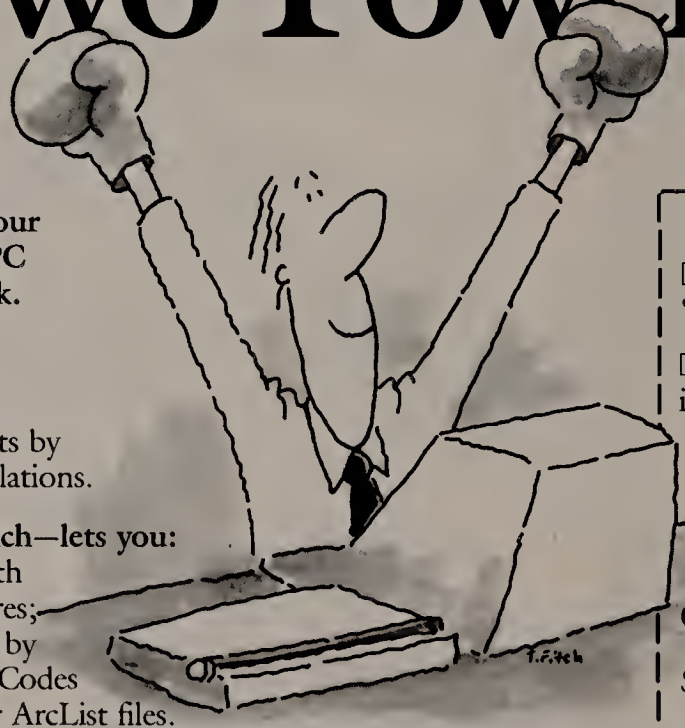

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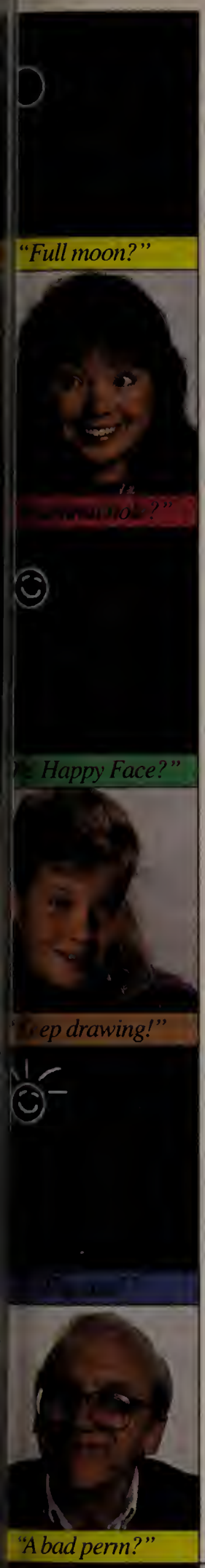

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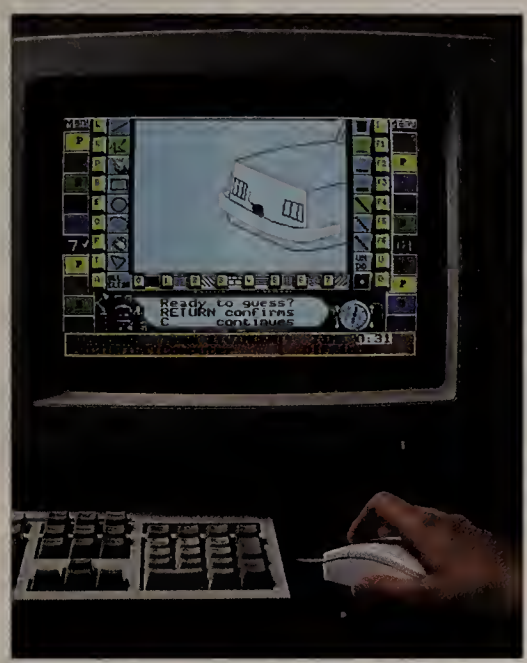

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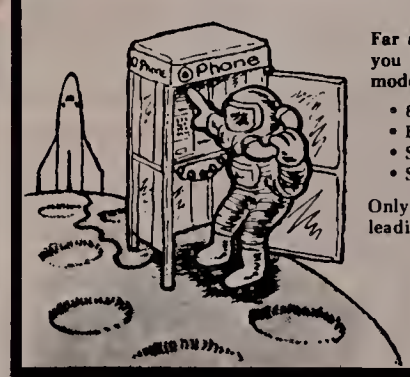

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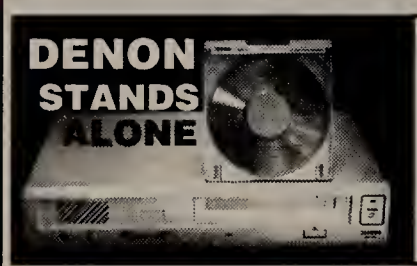

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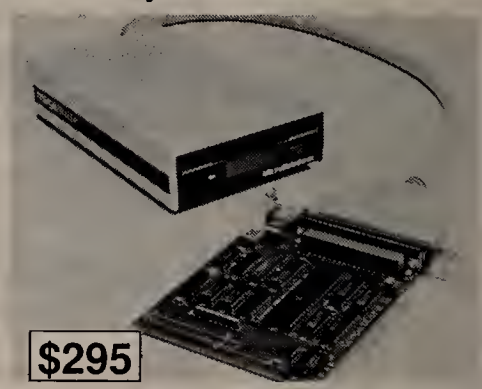

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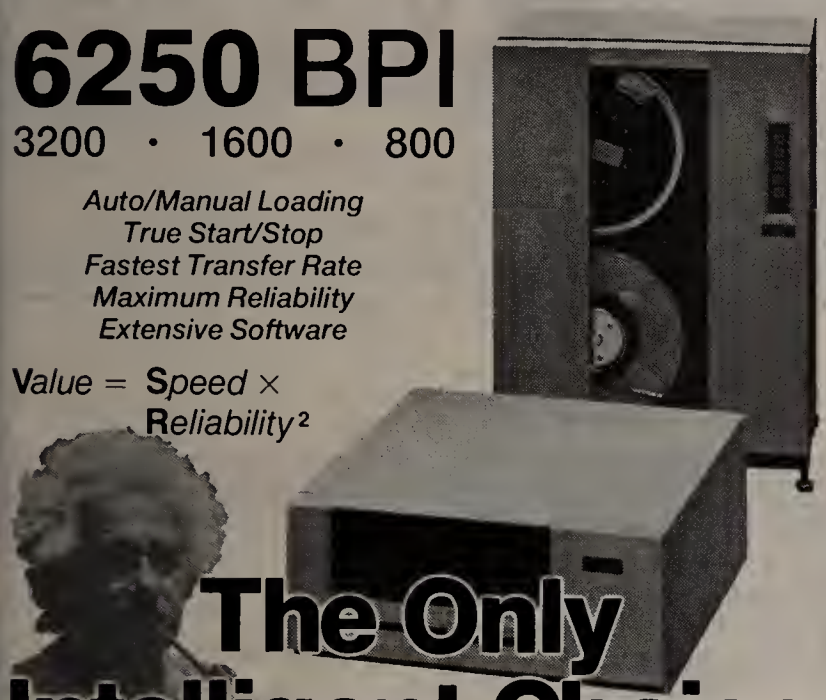

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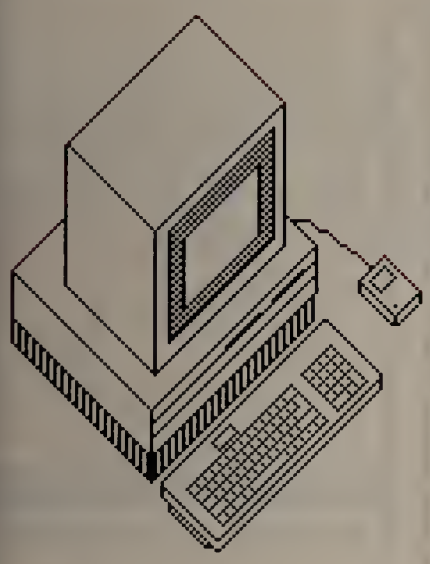

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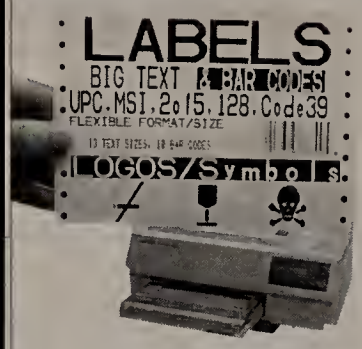

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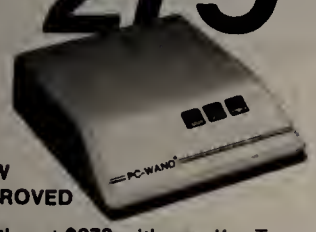

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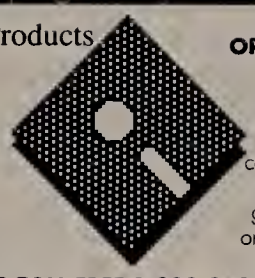

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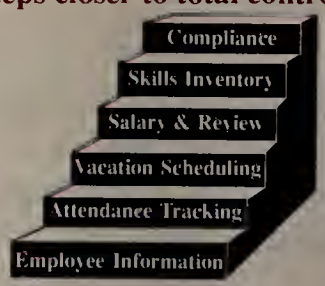

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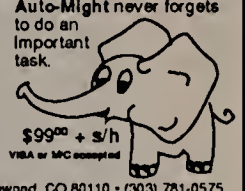

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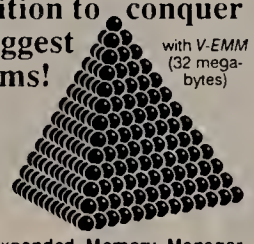

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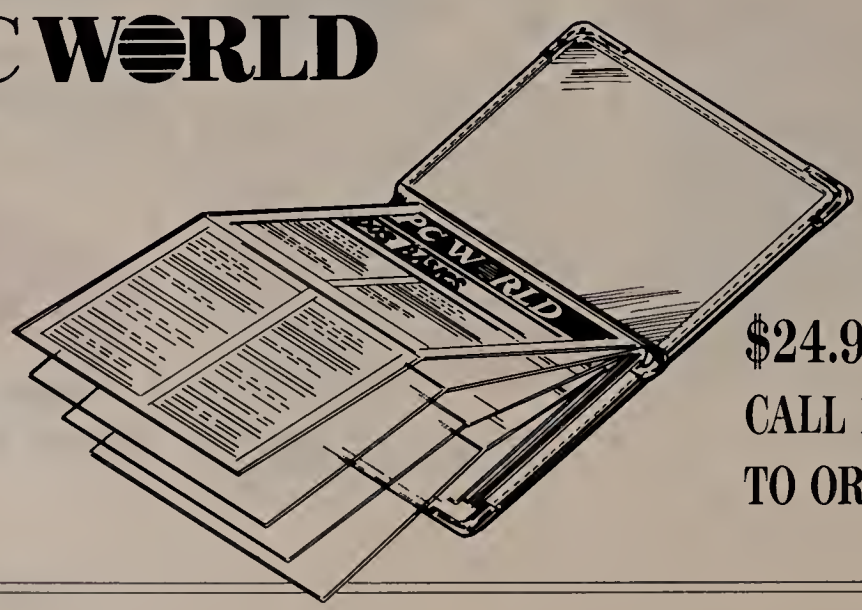

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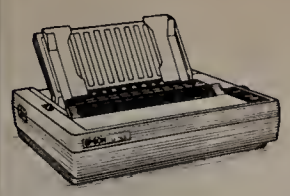

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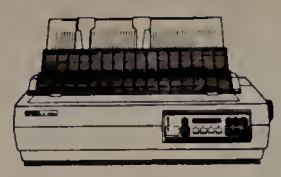

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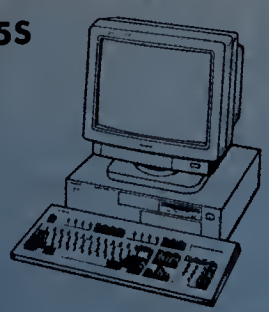

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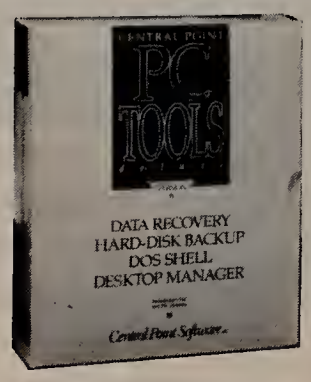

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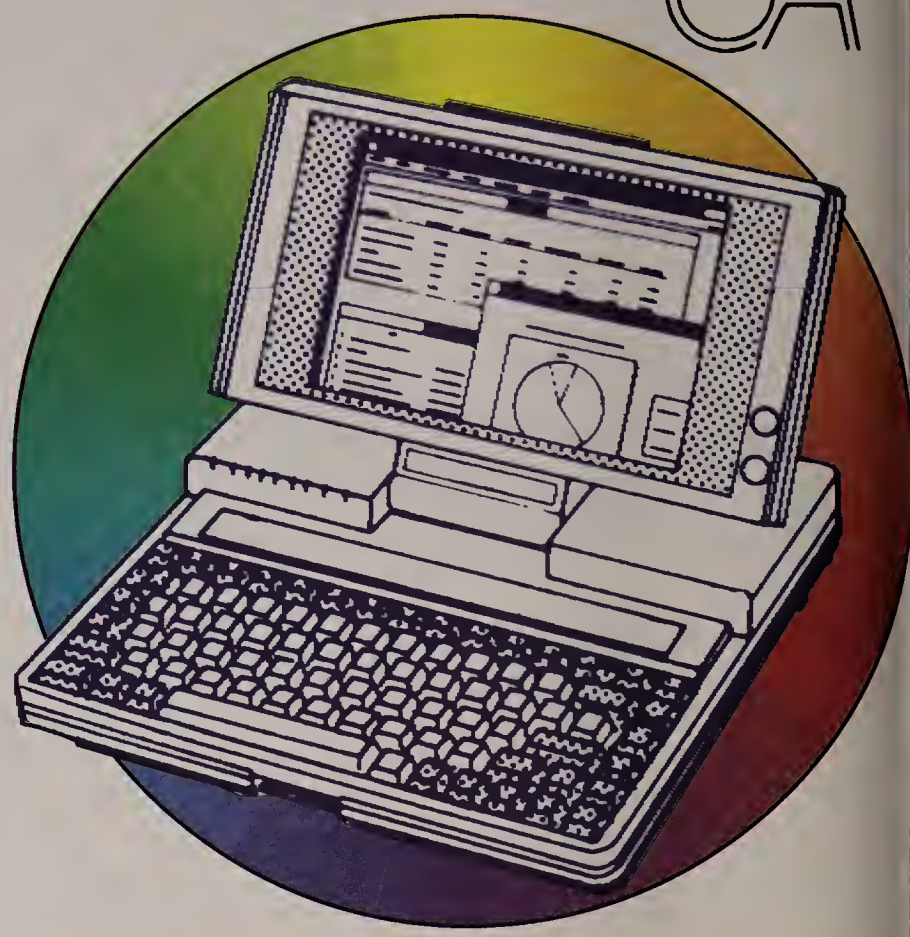

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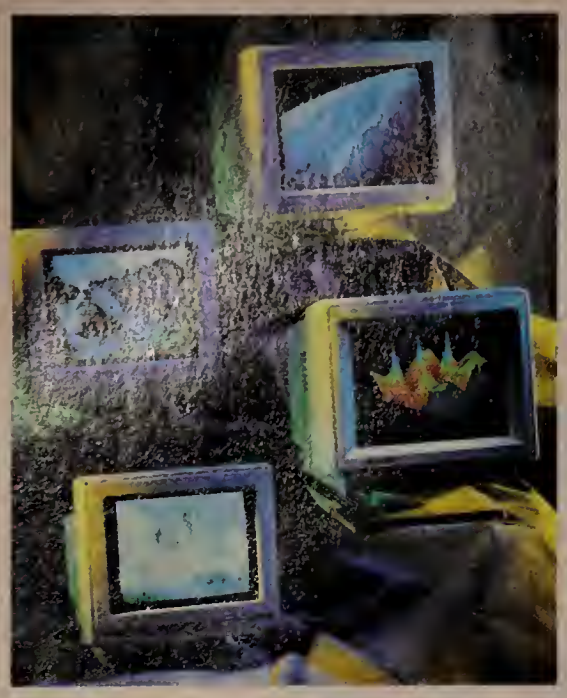

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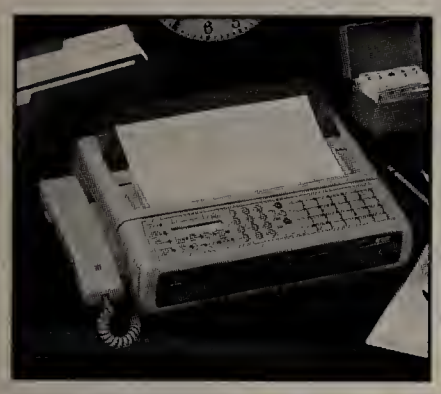

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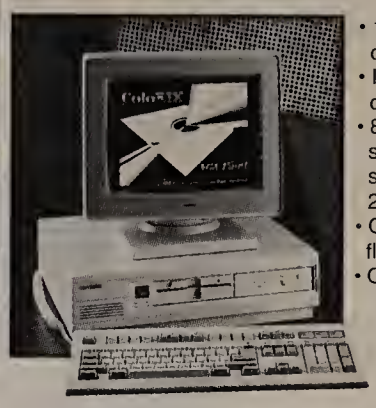

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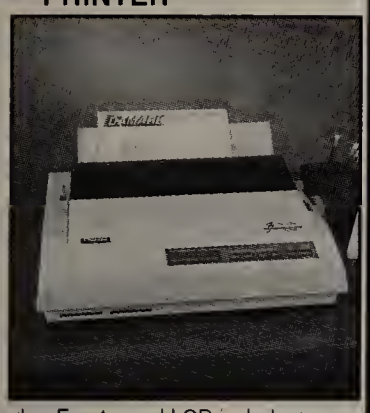

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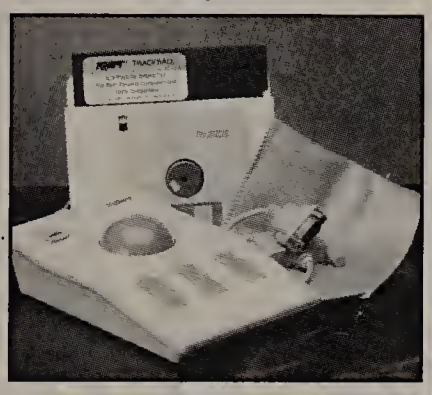

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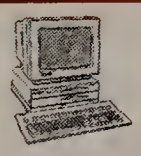

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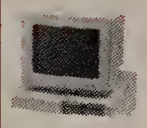

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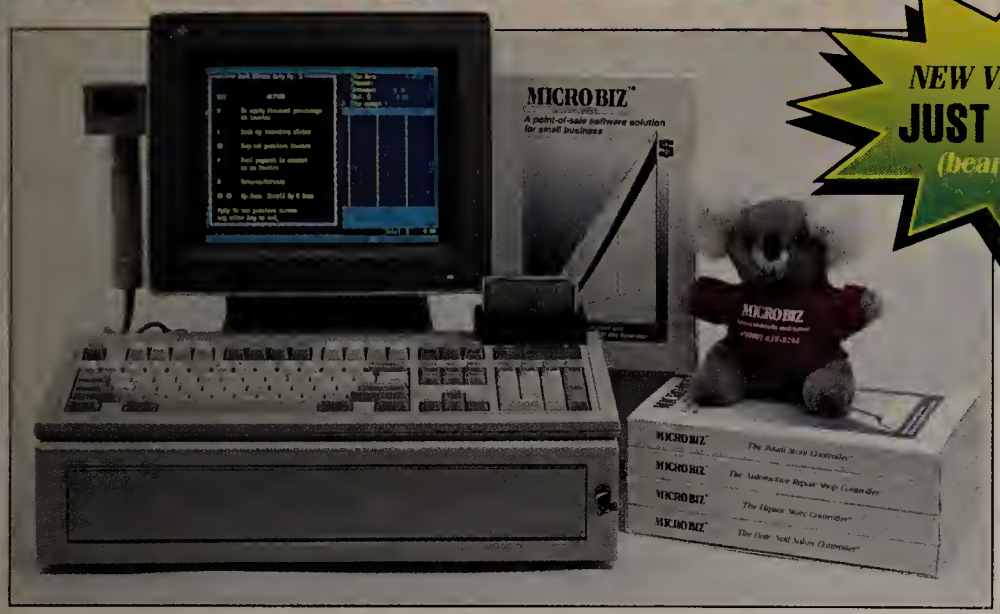

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With **The Retail Controller Jr.**, you'll make smarter management decisions because you'll have pushbutton-quick, down-to-the-penny information. Operating at your sales counter, the program captures vital customer and sales data, organizes it, and presents it in neat, accurate reports that eliminate guesswork and improve control.

Bar Code Easy, Feature Packed

The Retail Controller Jr. is designed for first-time computer users. Even a brand new clerk can learn how to process transactions in minutes. The speed and efficiency of barcoding (optional) can keep keystrokes to a minimum. Pull- down menus, on-screen help windows, and "point and select" customer and product lookup all help to make the program almost intuitively easy to use. All transactions are performed from just one Work Screen. Yet it incorporates many of the features you'd expect to find only in systems costing hundreds of dollars more, features like:

- ✔ automatic credit card verification
- ✔ bar code compatibility
- ✔ color/size matrix
- ✔ multiple pricing levels
- ✔ tracks inventory by size/color/style
- ✔ mailing labels
- ✔ tracks customer history
- ✔ daily closeout reports
- ✔ accepts split tender
- ✔ view in-stock status
- ✔ pull down menus
- ✔ pop-up windows
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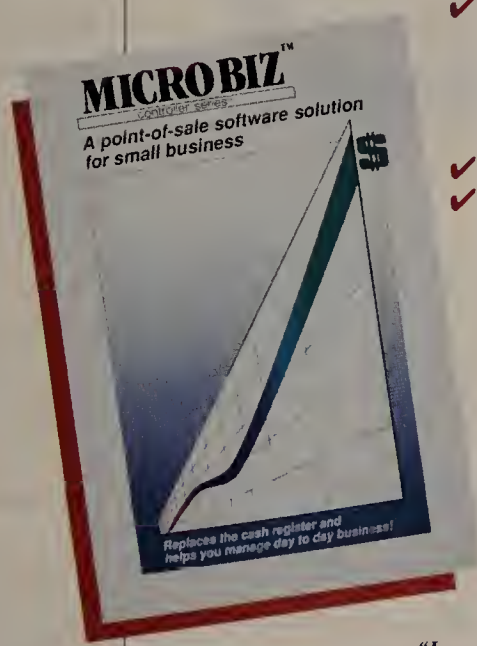

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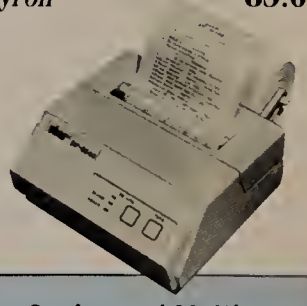
(The Controller Jr. Series automatically links to Computer Associates' ACCPAC modules)



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TAKING IT HOME

The practical guide to home/office computing

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Lawrence J. Magid

Just because you work at home doesn't mean you have to be out of touch. Communicating with co-workers by electronic mail is almost as good as being there. And considering what you'll save in commute time and interruptions, you may prefer it.

E-mail is neither difficult to use nor expensive. If your office has its own system, you should be able to log on as a remote user with just about any PC-based communications program. Check with your MIS department or LAN administrator.

If your company doesn't have its own system, a number of public E-mail services are available to anyone with a PC and a modem. MCI Mail, AT&T Mail, and CompuServe's EasyPlex are the most popular.

I rely heavily on MCI Mail because it's the choice of many of my editors. It's popular among corporate customers as well, though AT&T Mail tends to specialize in that arena. With either service, you pay a nominal annual fee and 45 cents to $1 for each message you send, depending on length. CompuServe's on-line information service also offers E-mail but charges $12.50 an hour for on-line connections.

MCI Mail works with any communications package, but it doesn't support popular error-checking protocols such as XMODEM, YMODEM, or Kermit. You can easily transfer text, but if you want to send binary files—spreadsheets, graphics, or formatted documents—you'll need *Lotus Express*.

Designed for use with MCI Mail, *Lotus Express* simplifies message exchange by giving you an improved editor and a series of folders to manage messages and addresses. It can run memory resident and download or upload your messages in the background at intervals you select.

TIM CARROLL

AT&T Mail and CompuServe support XMODEM and YMODEM but still offer their own *Lotus Express*–like front ends to simplify message handling. AT&T's *Access Plus* has its own text editor and lets you read and write messages off-line. *CompuServe Information Manager* adds mouse support and pulldown menus, unique amenities for a mainframe program.

It's possible to exchange messages with E-mail services other than the one you subscribe to, but it isn't easy. You have to type in a sequence of routing codes, slightly different for each service. *Lotus Express, CIM,* and AT&T's *Access Plus* handle that for you, but you're on your own if you're using a regular communications program.

All three services will send (but not receive) faxes for you. At 90 cents to $1 a page, they're all more expensive to use than your own fax machine or fax board, but they're cost-effective if you only send faxes occasionally. And you can send a fax message while you're on the road. I use MCI Mail to send faxes when I'm traveling in the United States and CompuServe (which is available worldwide) when I'm in Europe or Japan.

Whichever service you select, you may just find yourself using E-mail more than the telephone to send short messages, sparing yourself a lot of time-consuming telephone tag.

Lawrence J. Magid is a nationally syndicated computer columnist.

WHERE TO BUY

MCI Mail $25 annual fee plus 45 cents for messages up to 500 characters, 75 cents for messages of 501–2500 characters, $1 for messages of 2501–7500 characters; **Lotus Express** $150; 800/444-6245
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AT&T Mail $30 annual fee plus 45 cents to create messages up to 7500 characters, 80 cents to send messages up to 7500 characters; **AT&T Access Plus** $100; 800/624-5672
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☐ 286-based systems ☐ UNIX®-based systems
☐ 386-based systems ☐ Laptops
☐ 386SX-based systems ☐ Other: _____
☐ 486-based systems

2. Are you interested in computer products for:
☐ Home ☐ Business ☐ Resale

3. How many PCs does your company plan to purchase in the next twelve months?

Quantity	Timeframe	Quantity	Timeframe
_____	Less than 1 month	_____	6-12 months
_____	1-3 months	_____	More than 12 months
_____	3-6 months		

4. What do you plan to use computer products for?
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5. How many PCs do you have installed now at your company?
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6. Are you interested in leasing? ☐ Yes ☐ No

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